The Canadian
Medical Association Journal

Vol. XVIII TORONTO, APRIL, 1928 No. 4

An Address
ON
THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

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IN the pages of *Punch*, not long since, two flappers, discussing their respective and respectable medical advisers, decided they were of two types familiar to all of us, and of which we know many honoured representatives, one a "Pooh-pooh-er", the other a "Wind-up-er". In relation to tuberculosis, the Pooh-pooh-er, the man who habitually under-diagnoses, who has comfortable words of "Peace! Peace!, when there is no peace," was a tremendous nuisance twenty years ago, and still survives. But the man who habitually over-diagnoses, who "gets his patients' wind up," without sufficient cause, is more numerous than he used to be, and something of a nuisance also.

The Pooh-pooh-er—if the modern colloquialism may be permitted—has many alibis. He has known the family all his life and there has been no tuberculosis on either side of the house. "This girl looks as well as ever she did. Her chest is sound as a bell," (upon a half-minute examination, with a defective stethoscope, and through underclothing). "Blood? Doubtless from the throat. Pain? A little pleurisy, nothing like tuberculosis. Cough? Merely a 'cold'; everybody has 'colds'; or 'flu' hanging on a bit. Spring will clear it up. Fatigue? Not enough exercise; she should get out more." He will think and talk of everything else possible before and besides tuberculosis. He "simply wouldn't take the responsibility of even suggesting tuberculosis to this frail little woman; the shock would be enough to kill her. Bacilli? Laboratory men make many mistakes. Anyway even if it is tuberculosis, nearly everybody has it, and most of them get better. Why worry?"

The "Wind-up-er", who is inclined to over-diagnose tuberculosis, is nervous and apprehensive. He heard a râle, or thought he did, somewhere in the chest; or dullness has been defined, or at least suspected; or, there was a speck of blood a little larger than a pin head; or, there has been cough for a week. Plates show some dirtiness somewhere. There has been a positive von Pirquet reaction. A few pounds of weight have been lost. The reason *must* be tuberculosis and the prognosis *must* be grave.

Somewhere between the two extremes of under-diagnosis and over-diagnosis is a happy mean of right diagnosis which, if we seek earnestly, we can find.

Early or Late

While it is very right and most profitable to discuss the early diagnosis of pulmonary tuberculosis, it is remarkable, in the ordinary run of practice, how seldom an early diagnosis can be made. Roughly speaking, and not quite accurately, early tuberculosis is to be found only in people who as yet have no definite symptoms, who have no idea that they are ill, but who are examined as a routine, perhaps as contacts. When definite complaints and symptoms bring a man on his own suggestion to see the doctor, and tuberculosis is found to be the cause, it is usually well beyond the early stage. Tuberculosis after all is an insidious disease, of which the early stages are usually hidden, and the

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disease already advanced when symptoms begin to be distinctly noticed. That is why treatment begins at late stages as a rule; and at early stages, rarely. And that is why we get few early diagnoses, except when we examine on some plan or pretext those who are not yet ill.

Early diagnosis? Yes, the earlier the better, if the diagnosis is also right; not otherwise. Twenty years ago, earliness was about the only virtue considered in the diagnosis of tuberculosis, and lateness the only vice. But really to be right is just as important as to be early, and early-and-wrong is as capable of mischief as late-and-self-evident.

And there are difficulties in the diagnosis of tuberculosis. For one, there is the confusion between infection and disease. The infection is almost universal. A large proportion of adults, and even children, react to tuberculin. Some evidence of old invasion can be found, especially by means of x-ray plates, in most adults and in many children also. But such old infection does not necessarily mean present tuberculous disease. Though the infection is well-nigh universal the disease is not; a distinction not always made.

And "having tuberculosis" does not always mean "suffering" from it. A man with a non-tuberculous bone-sinus had healed tuberculous lesions at both lung tops; and a woman with acute arthritis in several joints had considerable evidence of old wide-spread healed lung lesions. Both were sent from general hospitals to be treated for tuberculosis, which neither was suffering from. If x-ray chest plates gave the only means of diagnosis, half the adults who enter hospitals might be considered tuberculous. They have had disease which still leaves traces in plates. But old lesions do not necessarily explain all present ills. Those who have recovered from tuberculosis must be permitted to have a chance of developing other diseases also.

VALUE OF A COMPLETE HISTORY

Among the various elements in a diagnosis of pulmonary tuberculosis perhaps the most important is the history. And a history worth getting is worth recording. Among instruments of precision a high place must be given to the fountain pen.

The family history is of great importance, not because tuberculosis is transmitted *in utero* from parent to child, for that is seldom the case, but because the family is the place of earliest, closest, and longest contacts. Wherever there has been close contact with advanced tuberculosis, especially under unfavourable conditions, and in ignorance, there has inevitably been a spread of infection, which can often be shown by careful examination of the infected circle. When two or three brothers or sisters follow one another in definite disease it is not usually because they have infected one another, but because of a common exposure, when they were children, to the infection of parents or grandparents, or boarder, or friend. The family history should be canvassed for such contacts, for general inheritance, and of course for general modes of life.

And tuberculosis is so bound up in the general bundle of life, is so much "a part of all that I have met," is so chronic, and so related to conditions and accidents, that every phase of life and life history can well be enquired into. When energy expenditure upon work is being estimated, energy expenditure upon play must not be overlooked, and, perhaps, most important of all, the amount of recuperation through rest, especially sleep, or the lack thereof.

A history of past illnesses may have much significance, particularly because diseases form typical groups or chains. Ischio-rectal abscess, erythema induratum and notably pleurisy, belong to the tuberculosis group or chain. Often, "colds" or "flu" do also, but these with pneumonia, pertussis, and the other acute respiratory infections still more often belong to the "septic" chain. Stories that lead up to the *denouement* of present illness are often of as distinctly different types as Hans Anderson's and Fenimore Cooper's. The type of the story, as well as the climax, is diagnostic material.

SYMPTOMS

The grouping or picture of the present symptoms is most significant also. There is in tuberculosis no pathognomonic symptom; every symptom is shared with other diseases. There is not one of the whole group which may not be absent, and indeed, every single symptom is found more exaggerated in other diseases. Cough, expectoration, dyspnœa, and even hæmorrhage, are all more marked in the septic infections. Fever, emaciation, and debility are not found in their greatest severity in tuberculosis.

Roughly, the symptoms due to the lesion are usually less marked, and those due to toxæmia more marked in tuberculosis than in other chronic pulmonary diseases; at any rate, until mixed infection has been established.

Fever, if very carefully observed, can tell much about tuberculosis; but of all medical instruments perhaps the thermometer is the most carelessly used. Normal temperature has variations due to age, sex, time of day, time of the month (in women), to meals, exercise and rest, and other conditions as well. Approximate inside-body temperature can be shown only when the mouth is closed upon the thermometer for a considerable time. And thermometers are of many degrees of accuracy. So, even such a common procedure as temperature taking must have care and thought given to it, if it is to be of any value, especially in cases where slight variations are to be expected.

SOUNDS

Much has been said and written in an attempt to make the stethoscope an instrument of some precision, but, useful as it it, it is still just an attachment to the human ear and, as such, useful or misleading according to the acuteness, skill, information, and judgment behind it. Within the bounds of the normal there is also in chest sounds a wide variation in large and small, thick and thin-walled, smooth and hairy chests, in the two sexes, and at different ages. Indeed, each individual chest has pretty much its own normal. And after a sound is found to be abnormal it is still necessary to know wherefore. Only a comparatively small proportion of abnormal chest sounds are diagnostic of tuberculosis. There is, perhaps, more under-diagnosis and over-diagnosis blamable to the misuse of the stethoscope than to any other single element. The whole fate of a man is sometimes poised insecurely, like a pyramid upon its apex, upon a single, slight, abnormality of sound. Or the life of a man is sometimes lost because the stethoscope, though faithfully carried, has never been mastered, or because it is "leaky," or the hearing is defective, or knowledge is deficient. Yet, true apical râles, distinct and fairly constant, are of very great diagnostic value. The best way to bring out significant abnormal sounds is to have the patient exhale until breath is well out, then cough, and quickly breathe in. Râles if present will likely be heard in the deep inspiration following cough. In the presence of old chronic disease even wide-spread, but with little moisture and thick pleuræ, the stethoscope will find much less than the x-ray plate.

VALUE OF X-RAY PICTURE

About the x-ray plate in the diagnosis of chest conditions, two opposing statements can be made. It is the best and most useful single, measure, not only for diagnosis, but also for an understanding of any pathological conditions that may be present. In borderline cases it is an absolute necessity. At the same time it is so very often wrongly and badly used, and so many wrong conclusions are based upon it, and buttressed up by it, that one is inclined at times to wish it had never been discovered. A chest film must be a good one to be of any use, indeed to be *safe*. Late disease shadows of lesions show almost as dense as bone shadows, but early disease shadows are like thin wisps of smoke. Scores of films are so burned by over-exposure that the ribs barely show. In such a film a lesion, in order to show, would have to be of rib density: anything like the smoke wisps of early disease would have long since disappeared. Such films show early tuberculosis no better than black midnight shows flower and feathery foliage and landscape. Such films are not excusable mistakes, but are crimes perpetrated against scientific medicine and against sick people. And, with the present tendency to have x-ray equipment in every office, and every man his own technician, there are thousands such. Even a good plate needs skilled interpretation, as the maze of tracks and traces in the woodland need skilled woodcraft to read. A fairly well taken film sent to me, as showing no pathological condition, actually did show extensive bilateral lesions with cavities and far advanced disease of which a sick girl was dying.

The x-ray plate is, then, at once the best and the worst element in the diagnosis of chest conditions; the best, if plates are well-made, well-read, and well-considered, in relation to other elements in diagnosis and prognosis; but by all odds the most misleading and mischievous, if badly made and wrongly interpreted and evaluated.

Tuberculin tests give so little useful information when rightly used and estimated, and so

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much mis-information when wrongly used and estimated, that they can well be left for the use of experienced investigators in the rarer cases. If a digression may be pardoned, much the same may be said of tuberculin in treatment. Within a narrow sphere, which he who uses must understand thoroughly, it can help; beyond that it is dangerous.

There is nothing quite so final and conclusive as the finding of tubercle bacilli, and yet even that fact must be considered in all its bearings. But, however many means of examination are used, the examination of the sputum should never be omitted. Even doctors sometimes speak of "analysis" of the sputum, which, of course, gives a wrong idea. Any one drop of a solution yields the same analysis as any other drop. So one analysis is as good as a hundred. The examination of sputum for bacilli is a very different process, much more like going fishing. Two days fishing are better than one; two searches for bacilli are better than one, and ten better than two. Unto seven times is not enough, and seventy times seven examinations sometimes yield results at last. One positive is positive, but no number of negative findings establish an absolute negative. Bacilli found mean tuberculosis present, though not always active disease in need of treatment.

SUMMARY

The diagnosis of tuberculosis is not an automatic affair of pressing certain buttons and reading off certain results. It is not a process of accounting, adding up points for and points against, then subtracting to find that the "ayes" or the "noes" have it. Like most other diagnoses, it needs judgment at every turn; judgment in the collection of data, history, symptoms, sounds, signs, plates, and bacilli; judgment in the consideration and evaluation of data and the reaching of a conclusion; and judgment in estimating what the conclusion involves. The diagnostician is counsel for prosecution and defence, judge and jury, all in one.

After all, it is not usually difficult to decide for or against pulmonary tuberculosis, after the complete evidence has been collected and considered. Most mistakes are made by *not collecting the data.* To proceed slowly, step by step, from fact to fact, is slower than to leap at once to a conclusion, but it is much safer. A medical student with method and data will usually be right; while an experienced practitioner without method, and with scanty data, making a snap diagnosis, will very often be wrong. Tortoise-method beats hare-brilliancy.

The diagnosis of pulmonary tuberculosis, moreover, is not one to be left to specialists, but should be made and well made by the general practitioner. Indeed no disease so wide-spread and protean as tuberculosis, so constantly in the foreground or background of the disease stage, should be considered as belonging to specialists. Men of special experience will always be useful in cases presenting special difficulty, and perhaps, also, in directing treatment at acute stages. But all the common manifestations of tuberculosis should be known and watched for, not only by general practitioners, but by men in almost all special lines of practice; by surgeons as well as physicians, by obstetricians and gynæcologists, pædiatrists and orthopædists; even by men whose special study may be the eye, ear, nose or throat. All these should know at least the danger signals, and the general practioner should know them well.

There is much to be desired and attained yet in the appreciation of signs and symptoms of tuberculosis, and their significance, by all sections of our profession, but undoubtedly diagnoses are on the whole made both better and earlier as the years go by.

The Graham Steell Murmur.—The Graham Steell murmur is the early blowing diastolic murmur heard along the left border of the sternum due to functional regurgitation through the pulmonic valve. The pulmonic valve itself is not diseased; its ring of attachment is stretched as a result of chronic pulmonary hypertension from marked mitral stenosis. The pulmonic artery is dilated. At post mortem examination the valve ring may not be widely dilated, the leak being largely the result of hydrodynamic effects during life. Graham Steell himself found only rare cases: one case out of seventeen with mitral stenosis examined post mortem, and two other probable cases out of forty-three with mitral stenosis not examined post mortem. The instance reported by Paul D. White, Boston, is said to be the first in which he made the diagnosis of the Graham Steell murmur without question ante mortem that has been confirmed at post mortem examination. The murmur is rare, but it does exist.—*J. Am. M. Ass.*, Feb. 25, 1928.

An Address

ON

ASPECTS OF PHYSIOLOGICAL HYGIENE*

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IN the organization of the new School of Hygiene of the University of Toronto provision has been made for the more intensive investigation and teaching of physiological principles which are applicable to preventive medicine. A very large part of the activities of the teaching sections of public health organizations has consisted in the study of communicable diseases and of methods for the prevention of epidemics. It is established, however, that the scope of preventive medicine can profitably be extended to include a discussion of those conditions which maintain the organs of the body at their maximum efficiency and of the adaptations of the body to its environment. The application of certain physiological principles to preventive medicine has already been made, and it is felt that instruction in these will help to prepare the students of public health for their work, particularly in the school and in the industrial aspects of preventive medicine. The attempt to apply the results of new physiological experiments to the prevention of disease is certain to be highly interesting.

The selection of subjects for consideration in a course in physiological hygiene is facilitated by the knowledge of what has been found appropriate in the schools where a department with a similar objective has been established (Johns Hopkins and Harvard Universities). The facilities available, the preference for subjects which have a Canadian application, and, to a lesser extent, the special research interests of those who conduct the course, also exert an influence upon its construction.

A course in hygiene usually begins with an enumeration of the principal causes of death. It then proceeds to discuss these various factors from a public health point of view—a view which, quite rightly, is deeply stained with the bacteriological. It would appear that the proper place for physiological hygiene in a course on preventive medicine is at the beginning. Instruction in the methods of maintaining health naturally precedes the study of the specific factors which produce or spread disease.

It is generally agreed that considerable emphasis can properly be placed upon this aspect of preventive medicine which may be called physiological hygiene. Its object is to provide instruction in, and to investigate those factors which are responsible for the maintenance of the normal physiological standards of bodily function. The extent to which we have departed from these standards was vividly demonstrated by the results of the physical examinations made during the war. In one very large series of men examined in England only one-third were found to be fit for full active service. Twenty per cent were suitable for certain types of service. Approximately a third were not fit for any such exertion as was necessary in the army. The remaining 10 per cent were not fit for any service whatever. Great efforts were made to find some standard of physical fitness on the basis of which to classify men. There are obvious difficulties in arriving at such a standard. Measurement of the vital capacity, and determining the ratio of this value to surface area, were thought to give a good indication of the degree of fitness, and standards have been set upon this basis. It is manifestly impossible to gauge the fitness of the body as a whole by determining a value which may run parallel with the efficiency of a limited part. A complete physical examination, including a study of the response of the various organs to their work and the recovery from this, is the only way to assay fitness. The

* Given before the Section of Public Health, Canadian Medical Association, Toronto, June, 1927.

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results of the periodical physical examinations of apparently healthy people are demonstrating the frequency of quite unsuspected abnormalities, many of which may be eliminated by early treatment. These examinations might be considered a practical application of physiological hygiene, utilizing of course the principles of physical examination as developed in clinical medicine. The number of people who are periodically examined is rapidly increasing. Physicians are practically unanimously in favour of the procedure. Certain universities have made provision for the periodical examination of their students. It is not sufficient to require a preliminary examination. It is inconsistent to advise medical students that periodic examinations are one of the most important aspects of preventive medicine and not to make provision for the examination of the students themselves at intervals throughout their course.

These facts are discussed in detail, at the beginning of the course, with the students of public health. To enable them to appreciate better some of the ways in which physiology can be applied to preventive medicine, a review of certain physiological principles has been found necessary. Certain aspects of the physiology of respiration, circulation, metabolism of food, and muscular exercise, are discussed, and demonstrations to illustrate salient points are arranged.

The adequate control of our environmental conditions, *i.e.*, provision for proper ventilation, illumination, and ultra-violet radiations, is of the utmost importance in keeping the body free from disease. Equally significant are the questions of an adequate, balanced diet, muscular exercise, physical training, and fatigue.

It is still necessary to emphasize the fact that bad ventilation is not attributable to accumulation of carbon dioxide or deficiency of oxygen. The ill effects are usually produced by the diminished cooling power of the air, and this condition is due to excessive temperature or humidity or to diminished air movement, or to a combination of these factors. One of the practical exercises is the determination of air movement by the kata-thermometer, a large alcohol thermometer graduated at 100° and 95°C. This instrument is also used to measure the cooling power of the air. Relative humidity is determined by calculation from the wet- and dry-bulb thermometer readings. Cooling power, as determined by the dry- or wet-bulb kata-thermometer, has been correlated with the sensation of comfort by Hill, Vernon and others. By the use of the kata-thermometer, ventilating conditions can be adjusted so that the recommended degree of cooling power is secured. Workers in the United States believe that a value termed "effective temperature," which is determined from the temperature, relative humidity, and air movement, is a better indication of comfort. Certain combinations of these values give an "effective temperature" within limits called the "comfort zone." There is conflict of opinion at the present moment between the English and American workers as to whether the kata-thermometer or "effective temperature" readings are the more reliable indication of comfort. Bulmer, in a recent investigation in Ontario, has found that kata-thermometer cooling power recommended by the English group usually gives an "effective temperature" within the "comfort zone" of the American investigators. It is well to remember, also, that the sensation of comfort may be quite differently interpreted in the different countries. The methods which have been developed to measure the efficiency of ventilation serve very well to enable sudden changes to be eliminated or to detect gross deviations from the accepted values. The principles of ventilation are discussed with the students of public health and as a part of the practical course they make katathermometer and "effective temperature" determinations under various conditions.

The subject of illumination holds interest particularly for public health workers in schools or factories. Illuminating engineers recommend values for a variety of situations. There is considerable latitude in the number of foot-candles required for "adequate" illumination, and, of course, individuals vary a great deal in their requirements. The elimination of shadows and the prevention of glare are important requisites for proper lighting. The students receive several lectures on the physiological and public health aspects of this subject and, as a practical exercise, chart the illumination of various rooms and become familiar with the principle and operation of the Macbeth illuminator, a very satisfactory instrument for

assaying illumination, and with a simple and inexpensive foot-candle meter.

The study of ultra-violet radiations has a definite place in physiological hygiene because of their well proved effectiveness in the prevention of rickets. These radiations can be secured in Toronto (from the sun), in adequate amounts for the prevention of rickets in animals during spring, summer, and autumn, as Tisdall and Brown have shown. In December, January, and February, the amount available is apparently much less. The use of glass which is much more permeable to these short wave lengths than ordinary window glass should be advantageous in circumstances where individuals are not able to be out of doors, and during the months when these radiations are available in adequate amounts. There is some evidence that the penetrability of these glasses to ultra-violet radiations decreases fairly rapidly with age. The stimulating and beneficial effects of cool moving air are lacking in "sun baths" from artificial sources of ultra-violet radiations, but the effects may nevertheless be of great value in the prevention of certain conditions. The recent work of Mrs. Mellanby on the effect of the antirachitic factor, which can be supplied in cod-liver oil or by ultra-violet radiations, on tooth formation in young animals and children is one of the greatest contributions to preventive dentistry. There have been numerous reports on the rise in resistance to infection produced by exposure to ultra-violet radiations, but convincing evidence of this effect is yet unavailable. There is no increase in any of the specific antibodies of the blood of animals on exposure. An increase in the bactericidal power of the blood has been reported from Leonard Hill's laboratory, and recently Eidinow has stated that this increase takes place at the site of irradiation. Confirmation of these results would give us a probable explanation of the reported increased resistance to infection. The discovery that inert materials can be endowed with antirachitic properties by irradiation with ultra-violet rays has aroused great interest. Attention was focused on cholesterol for a time, but now ergosterol is hailed as the "mother substance" of vitamine D. Irradiated ergosterol is a very potent antirachitic substance. Instruction in this phase of physiological hygiene is largely by lectures, but sources of artificial ultra-violet radiations, (the carbon arc and the mercury vapour lamps) are investigated and the use of several of the methods recommended for the assay of these radiations is demonstrated.

The subjects of diet and nutrition are discussed in a series of lectures given by the Professor of Biochemistry. As one of the practical exercises in physiological hygiene the students carry out a determination of the basal metabolism of one of their number by the Douglas bag procedure.

The subjects of muscular exercise, physical exercise, physical training, and fatigue are considered in some detail. An attempt is made to point out the application of the results of physiological experiments on isolated muscles to the problems of muscular exercise in man. The food material used by the isolated muscle during contraction can be studied by chemical analysis of the muscle tissue and by other methods. Carbohydrate is the chief, if not the only, material used. In the intact organism the food used during the muscular exercise can be determined by analysis of the air expired during the exercise and recovery periods. In the whole organism the energy for muscular exercise is also largely provided by carbohydrate. When carbohydrate is used in the isolated muscle lactic acid is formed. If there is an abundance of oxygen available there is no accumulation of lactic acid. If the supply of oxygen is deficient the acid accumulates, neutralized by the protein and alkaline salts of the muscle, until a concentration is reached in which the muscle is unable to contract. In the same way lactic acid is formed during muscular exercise in man. It diffuses away from the actively contracting muscles and its concentration in the blood may become greatly increased. It has been calculated that the lactic acid concentration in human muscles, when the subject is completely exhausted, is approximately the same as the lactic acid maximum of isolated frog's muscle. Both the isolated muscle and the intact organism can go in debt for oxygen. The magnitude of the oxygen debt is directly proportional to the amount of lactic acid which has accumulated. The amount of oxygen necessary to oxidize the accumulated acid is the measure of the oxygen debt. The oxygen debt in a human subject is determined by measuring

the amount of oxygen used from the moment the exercise is stopped until the oxygen consumption has returned to the resting value. From this figure the resting oxygen consumption calculated for this same period of time is subtracted. The resulting value is the oxygen debt incurred during the exercise. Subjects recover at different rates from a given oxygen debt and a study of the rates of recovery in a large series of apparently normal individuals, as A. V. Hill has suggested, would be of great interest. Meakins and Long have recently reported some interesting studies on the oxygen debt in circulatory failure.

We know very little about the exact changes which take place in the muscles during training. An increased glycogen content has been reported. An enhanced buffering power which would increase the lactic acid maximum has been suggested. The muscle fibres increase in size. It is likely that the blood supply is increased. The changes in the physiological responses of the heart and lungs as a result of training have been fairly extensively studied. The oxygen carrying power of the blood is increased. The basal metabolism is said to increase slightly during training but probably changes very little. As a subject becomes better trained for any particular exercise many superfluous movements are eliminated. It has been suggested that there is better relaxation of the muscles whose action is opposed to that of those involved in the exercise. Certainly the subject works more efficiently. The oxygen required for a given piece of work is reduced. The available data on these points are discussed and practical exercises illustrating certain points are arranged for the students.

Several extensions of the course are being developed and others are contemplated. A room is being equipped with a heating system, humidifiers, and fans, so that any combination of environmental conditions can be secured. The students will be used as subjects in certain type experiments and demonstrations. Metabolism under various conditions will be studied by other procedures, in addition to the Douglas bag method. Feeding experiments conducted by the students on experimental animals, to illustrate certain aspects of nutrition, are contemplated.

Lectures and demonstrations in the course in physiological hygiene occupy about fifty hours. Thirty hours are at present devoted to practical work.

An Address

ON

PSYCHOLOGY IN MEDICAL EDUCATION

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IN recent years the importance of training in the mental sciences for medical students is being very generally recognized in all the leading medical schools and by the profession at large. There remains, however, considerable difference of opinion and some confusion of mind concerning the relationship of the different mental sciences and their place in the medical curriculum. This paper is an attempt to contribute something to a better understanding of these problems.

At first it is desirable to indicate the scope and relationship of psychology, abnormal psychology, psychiatry, and mental hygiene. *Psychology* may be defined provisionally as the science of behaviour and consciousness. Its task is to observe and describe the facts both of consciousness and behaviour, and to explain them. In dealing with these two apparently different orders of fact, the psychologist makes use of two types of observation, namely, *introspection, and objective observation;* and he studies these facts regardless of whether they are normal or abnormal. Psychology is thus primarily a pure science. It is analogous to physiology, and, like the latter, may be regarded as a basic medical subject. In the study of behaviour, psychology

somewhat overlaps the field of physiology, just as physiology overlaps the field of biochemistry; but while physiology is primarily concerned with the functions of organs, behaviour psychology deals more especially with the functions of the total organism, that is to say, with the responses of the total organism to environmental situations. Psychology, as a study of behaviour, is *in principle at least* as exact a science as physiology. On the other hand, psychology, as the science of consciousness, is from its very nature more speculative and inexact, because each individual can observe only his own consciousness. This part of psychology cannot, however, be dispensed with, as some maintain, because consciousness is an important aspect of the personality and a fact which as such challenges investigation.

Abnormal psychology is that branch of psychology which treats of deviations from the normal in consciousness and in behaviour. This statement requires a definition of the normal. There are two different conceptions of normality. The first regards the normal as the ideal function, or the best possible adaptation. This is a view frequently held by the physician, but it is not an accurate or workable view, for it contains a subjective factor, namely, ideals, which differ from individual to individual. Thus it would be impossible to give a definition of "best possible adaptation" that would be generally accepted. According to the second conception of the normal, it is merely the average or median measure of a group. This is a quantitative or statistical conception. From this point of view, the normal can be definitely ascertained in the case of all measurable traits or functions; and in other cases the statistically normal can be determined *in principle, if not in fact.* According to the statistical view, all human traits, mental as well as physical, are distributed among the population at large in conformity with the normal frequency curve, or curve of probability. The largest proportion of the population is thus, in any given trait, grouped closely about the median quantity or average; and the greater the deviation from the average the fewer the individuals that possess that amount of deviation. These deviations may, of course, be above or below the average. Abnormal psychology deals with the more extreme deviations of this sort, both in consciousness and in behaviour. It, therefore, includes a study of both the subnormal and supernormal in all psychological traits. For example, it includes the study of genius as well as stupidity, of unusual memory capacity as well as amnesia, and of hyperemotionality as well as deficiency in emotional responses.

Some of these deviations from the average are due to disease, while others are purely constitutional. Abnormal psychology includes the study of both types of deviation. The part of abnormal psychology which limits itself to a study of deviations due to disease is called psychopathology. Abnormal psychology is thus broader than psychopathology. It treats of all sorts of idiosyncrasies, whether symptoms of disease or merely individual peculiarities. For example, it includes the study of stubbornness, as well as of catatonic negativism; of ordinary mannerisms, as well as of the stereotyped responses of dementia præcox; of egotism, as well as of the grandiose delusions of paranoia; of common grouchiness, as well as of epileptic ill-humour; and in general of any unusual phenomena, regardless of whether they are constitutional or pathological in origin.

Abnormal psychology is also primarily a pure science. Its chief task is description and explanation. It may be compared with general pathology, which deals primarily with disease as such and not with treatment; and, like general pathology, it should be regarded as a basic science in medical education.

Psychiatry on the other hand, is a medical specialty, somewhat analogous to other medical specialties, like dermatology and ophthalmology. It is thus an applied science, or an art whose final object is the diagnosis and treatment of mental patients. It is broader than psychology. It includes the physical as well as the mental symptomatology of mental defects and diseases, their etiology, their pathological anatomy, and any other scientific knowledge that can be applied to their diagnosis and therapy. It also includes the highly important subject of the institutional care of mental patients.

In the teaching of medical students the psychiatrist's task corresponds to that of the medical clinician. He instructs the students in the application of their knowledge of the various basic subjects, physiology, pathology, biochemistry, etc., as well as psychology, in the diagnosis and treatment of patients. Of course the psychologist may, in the presentation of his psychology and abnormal psychology, indicate some applications, and illustrate his material

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with practical examples, just as the physiologist and pathologist generally do. But the psychologist has no right to practice in the medical sense. He is merely a specialist in a particular field of science, and practice requires a much broader training in many other sciences besides psychology, and in the art of handling patients. He may, however, be consulted for advice on special problems, just as the physiologist and biochemist are frequently consulted. It should, of course, be borne in mind that the same person may act in two or more capacities. The psychologist may be also a psychiatrist; and the psychiatrist may be also an able scientist in any one of a number of fields, such as biochemistry, physiology, pathological anatomy, or psychology. The distinction is made between psychology (including abnormal psychology) and psychiatry, and not between any two individuals.

Mental hygiene is a recent development in the field of preventive medicine. It is primarily a movement whose object is the promotion and preservation of mental health. It is thus a part of the public health movement. Its chief task is the education of the public in those scientific principles and practices which have a bearing upon mental health. But mental hygiene is also the art of handling and correcting various minor problems and maladjustments, which interfere with happiness and well-being, and which may lead to more serious forms of mental disorder. Its object is not only to prevent mental disease and defect, but also to promote the development of the best possible type of personality. It therefore seeks to encourage scientific investigation into all the factors, hereditary as well as environmental, that cause not only mental disease, mental defect, and delinquency, but also unhappiness, inefficiency, and other undesirable conditions.

The student of general medicine should have some training in psychiatry and mental hygiene, just as he has some training in the other medical specialties, not only because he will occasionally be called upon to treat cases of mental disease and to give advice on the preservation of mental health, but also because his patient is a psycho-physiological organism, and there are mental aspects to physical disease. It follows that the general medical student needs training in the basic subjects of psychology and abnormal psychology, while the student specializing in psychiatry should have a more intensive training in these subjects. The psychological needs of the general medical student and of the student of psychiatry must, however, be considered separately, and this paper is concerned especially with the former. Furthermore, it must be emphasized that, in addition to its importance as an introduction to psychiatry and mental hygiene, a knowledge of psychology has other values for any medical man. It will assist him in his social as well as his professional relations, and in a better understanding of himself as well as his patient. The physician's usefulness in the community, and even his efficiency as a physician, must be measured not only by what he can do but also by his breadth of knowledge, his understanding of human nature, and his appreciation and recognition of individual differences among his patients.

In the first place, it is important that the medical man should have a psychological point of view and outlook. This is perhaps more important than any special information he may acquire in a course in psychology. It is comparatively easy to interest the medical student in the psychological aspects of human nature, but it is difficult to select from the many diverse points of view a satisfactory working hypothesis regarding some of the fundamental problems. On this account, the view presented should, perhaps, be as eclectic as possible. In the present state of our knowledge it seems only the part of wisdom to select worth-while contributions from all sources, and to avoid becoming one-sided and dogmatic.

There is one fundamental problem of a highly speculative nature which is frequently avoided or evaded in elementary courses. This is the old and persistent problem of the relation of mind and body, or, more specifically, of consciousness and the nervous system. There is, of course, no solution to the problem, but it is highly desirable to adopt a working hypothesis, especially in a course for medical students. The writer feels that the most satisfactory working hypothesis is the so-called "double-aspect" theory. According to this theory, consciousness and neural activity are merely subjective and objective aspects of the same thing. The neural activity is the phenomenon as it might appear to the external observer who investigates behaviour and neural processes, or examines the brain under the microscope. Consciousness is precisely the same process as it appears to the

subject himself.* The implications of this theory are far-reaching and important. It implies that introspection is a helpful scientific method. When the nature of neural configurations and neural activity cannot be revealed by objective scientific methods, some knowledge of these processes may still be inferred from the introspections of the subject. These introspections often give a quite detailed description of the subjective aspect where objective accounts of the correlated physical processes are impossible. In this way introspective psychology often runs far ahead of neurology.

In the explanatory part of introspective psychology the question arises whether a mental process can cause a succeeding mental or physical one, or whether the causal sequence must always be regarded as physical. The answer will depend very much upon the meaning of "causal relation." The writer regards the concept of causality as a physical one involving not only invariable sequence but also transformation of energy in the succession of events. Energy is also, of course, a purely physical concept. It is thus correct to speak of neural energy, but not of mental energy. Consequently, the real causal sequence is always on the physical side. Although mental events occur in succession, it would not be legitimate for the above reasons to regard this succession as a causal one. A mental event can therefore be explained only by indicating its physical aspect, and then tracing the causal sequence on the physical side. However, because of our lack of knowledge of neural processes, it is not always possible to indicate the physiological counterpart of a mental event. In such cases it is necessary to act as if the mental event itself caused a succeeding physical one. From this point of view psychological explanations in terms of consciousness are only tentative, but are necessary in the present undeveloped state of the science of neurology. Perhaps, if we knew absolutely all that is going on in the brain,—the changing neural patterns, the molecular transformations, the electron-proton relationships, we could dispense altogether with mental explanations. Psychology, as a study of consciousness, would then become merely descriptive and only an interesting pastime. The study of behaviour would constitute the whole of the science of psychology. This, however, is not likely to happen for many years to come.

An illustration of the necessity for accepting tentatively mental explanations is the frequently occurring case of some form of indigestion following worry, anxiety, or mental conflict. Strictly speaking, and *in theory*, the worry as a conscious process does not cause the indigestion. It is rather those stresses and strains in the central and peripheral nervous system, which are probably the physical counterpart of the worry, that cause the indigestion. We do not, however, know the nature of these supposed stresses and strains, and must therefore in practice act as if the worry caused the indigestion, and guide our therapeutic procedure in accordance with this view.

This double-aspect theory thus enables the student, and the practitioner, to reach a sane compromise between total neglect of mental factors and their over-emphasis; thus avoiding, on the one hand, faulty diagnosis due to neglect of important factors, and, on the other, medical charlatanism akin to Christian Science. The medical man who takes the point of view that every symptom must have a physical cause is theoretically right, but he would be wrong in concluding that introspective psychology has therefore no value in medical practice. In the present state of our knowledge it is necessary to distinguish between what is theoretically sound doctrine and what is sane and sensible practice. We can thus agree with the view that a mental process cannot in theory cause a physical symptom, but the neural aspect or correlate of the process *can* cause it, and since this neural process is not known we must act *as if the mental process caused it.* Mental processes are, however, *not separate things* which act upon the physical body, and herein the present view differs from that of Christian Science and other forms of interactionism.

The double-aspect theory of mind-body relation also affords an exceedingly good basis for an eclectic attitude in general psychology. The contributions from all the different schools of psychology can be included in a psychology with this foundation. The behaviourist studies only one aspect of the psycho-physiological organism,

* In case this paper falls into the hands of readers of a philosophical turn of mind, it is necessary to emphasize that the "double-aspect" theory as presented here is merely a *working hypothesis* regarding the relationship of two aspects of the phenomenal world, that is to say, two obvious sides of experience, mind and body. It does not imply any particular metaphysical view regarding the ultimate nature of the reality that may underlie both of these phenomenal aspects. In other words it is an empirical or scientific theory regarding the relationship of observed facts, and not a metaphysical speculation regarding the ultimate and unknown reality.

and he makes an important and valid contribution so far as he goes. The thorough-going introspectionist studies only the other aspect and his contribution is also valid from that point of view. One can also accept the contributions made by the different schools of introspectionists. Those who regard the task of psychology as merely the analysis of consciousness have given us some interesting and valuable results. Those who have taken a more dynamic point of view, and study chiefly the sequence of mental processes and the motivation of behaviour, have likewise contributed much to our psychological knowledge. Even the psychoanalysts, notwithstanding their somewhat fantastic ideas regarding an unconscious mind, have given us a great deal of valuable information with reference to such facts as mental conflict, repression, over-compensation, and the various fundamental drives that determine behaviour. Thus valuable contributions from all sources can be included in a psychology approached from this point of view.

There will probably be some difference of opinion with reference to the special topics that should be selected for consideration in courses in general and abnormal psychology for medical students. As previously pointed out a distinction should be made between the general medical student and the student specializing in psychiatry. The general medical student will scarcely have time for a laboratory course, or a course in the technique of mental testing; and in the writer's opinion such courses are not necessary and would not be very helpful for this class of student. In the first place he will have very little occasion for using mental tests, and, secondly, the tests in their present form should be used and interpreted with considerable caution, as their significance is by no means clear. The student of psychiatry should, of course, have training in these techniques, as well as in all other available mental or physical methods for the study and more accurate diagnosis of his patient. What the general medical student needs primarily is a psychological point of view, and some sound psychological information on the more important topics.

The course in general psychology should be connected as closely as possible with the student's work in anatomy and physiology. After presenting the above point of view on the mind-body relation, the course might continue with a discussion of the stimulus-response hypothesis and the mechanism of behaviour, including receptors adjustors, and effectors. In this connection, considerable time might be spent on the central nervous system, in order to give the student a sound working hypothesis regarding neurone relationships and neural activity, which will assist in a better understanding of the phenomena of behaviour and consciousness. Then there might follow a discussion of such topics as instinct, habit, imitation and suggestion, perception, association, memory, and other forms of ideation, feeling, emotion, and the nature and development of temperament, character and personality.

The time spent on perception might very well be reduced to a minimum of perhaps one or two lectures, and proportionately more time devoted to instinct, emotion, the motivation of behaviour, and the various dynamic aspects of the personality. Considerable time should be given to habit and the process of habit-formation and learning. There should also be some discussion of the nature of intelligence and the validity and significance of so-called "intelligence tests." In accordance with the double-aspect theory, all of these traits or functions will have their subjective and objective aspects, and wherever possible they should be treated from both points of view. Instinct, for example, is subjectively experienced as impulse or *drive*, while it is objectively observed as motor-mechanism or pattern-reaction. Some of the topics can, however, be more readily treated from one point of view than the other. Habit can be more readily treated objectively, while perception and emotion can be more readily treated subjectively. This merely means that the other aspect is not so obvious or so well-known.

The course in abnormal psychology should deal with the abnormalities of the chief mental traits and functions and their explanation. It should include especially such topics as illusion, hallucination, mental blindness, aphasia, amnesia, delusion, obsession, phobias and other aberrations of instinct and emotion, abnormalities of feeling and temperament, and disorders of personality. It should also deal with such topics as dissociation, mental conflict, repression and its consequences, and perhaps the psychology of dreams and hypnosis. There should, of course, be some discussion of the meaning of the abnormal and the relation of abnormal to normal mental life and behaviour. The course might conclude with a consideration of the application of psychology and abnormal psychology in the understanding of various behaviour problems of childhood and

adult life. Discussion of disease-entities or symptom-complexes, their etiology, classification, and treatment should be left to the psychiatrist.

In addition to the description of the various mental abnormalities there should be in each case a discussion of some of the common explanatory hypotheses or theories, such as neurological explanations, endocrinological and other physiological explanations, and psychoanalytic explanations. This would involve also some discussion of the so-called unconscious, or subconscious mind. In this connection it is important to emphasize the distinction between fact and theory. It is a fact that much of normal behaviour, and many symptoms of mental disease, are caused by unconscious factors, in the sense that these factors are outside of consciousness. The subject or patient is not aware of them. To speak of the unconscious motivation of behaviour in this sense is, therefore, merely a reference to a fact. On the other hand, the nature of these unconscious factors, whether they are physical or mental, is merely a matter of opinion. According to one theory, the unconscious factors which determine behaviour or symptoms are themselves mental. This is the theory of an unconscious or subconscious mind. According to another view, these unconscious factors are purely physical, and either neurological or physiological. For practical purposes it really makes very little difference which theory is held. It does, however, make a difference whether one recognizes the important fact that behaviour is motivated and symptoms are determined by unconscious causes, that is to say, by causes outside of the patient's consciousness. Modern investigations have shown what some of these causes are, and have indicated the possible nature of others. In describing them, it is often convenient to use psychological terms such as complex, wish, and impulse, but this does not mean that the unconscious is necessarily mental. A physical account could be given in terms such as neural pattern, neural trace, neural energy, and neural inhibition and facilitation, if we knew more about neurology. It is thus possible to accept the fact of unconscious motivation, and to go very far towards an understanding of the character and operation of unconscious factors, without accepting the theory of an "unconscious mind."

The main object of the courses in psychology and abnormal psychology for the student of general medicine is to give him a psychological point of view, an understanding of some of the fundamental problems, and some knowledge of well-established psychological facts and principles. If this object is attained, he will approach his patient as a psycho-biological unit, and as a total personality. He will not only treat patients rather than symptoms, but he will also have a better understanding of the significance of the symptoms in relation to the personality as a whole, and of the rôle of psychogenetic factors in their etiology. The student who proposes to specialize in psychiatry should, of course, have more intensive training in psychology and abnormal psychology. This training should include courses in experimental psychology, the technique of mental testing and other forms of mental examination. Such courses could be either undergraduate or graduate courses, according to the policy of the medical school with reference to specialization before or after graduation.

Essential Hematuria.—Hematuria is always an alarming symptom and its cause must be carefully sought by the conscientious physician, says Hermon C. Bumpus, Jr., Rochester, Minn. If the hematuria is the result of single or multiple diseases not far enough advanced to be diagnosed at the time of examination, it would seem that a review of cases followed for a period of years would reveal such disease or diseases sufficiently advanced so that the etiology in at least a part of them might be ascertained. With this purpose Bumpus has reviewed the cases of essential hematuria seen at the Mayo Clinic up to five years ago. The earliest of these cases was examined in 1907, and it would seem that in from five to twenty years the most insidious disease would have time to manifest itself. Yet of 155 patients heard from, only six report the development of any definite renal disease. 105 patients report that they are in good health, forty-four that they are in fair health and only six that they are in poor health at present, the idea that the hematuria was caused by an early malignant growth or any other serious disease in its incipiency may be dismissed. Some suggested causes of essential hematuria are nephritis, chronic passive congestion, papillitis, infection and hemophilia.—*J. Am. M. Ass.*, Feb. 25, 1928.

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An Address
ON
CARCINOMA OF THE RECTUM*

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IN the dark shadow of our ignorance as to the cause of new growths, it is not to be expected that I can bring any light when I venture to bring to your notice certain facts, and some few observations which bear on our present attitude towards such a dread disease as cancer of the rectum. I cannot recall the occasion when rectal cancers have been the subject of a paper presented to this Society. It is certainly long distant. It is as if a feeling of despair had paralyzed our endeavour along this melancholy road.

I believe that there are several misconceptions in respect to cancer of the rectum which it would add to our comfort and encouragement to allay. This is the reason that I am beholden to you. I will avoid, as far as possible, tedious enumerations of statistical figures, and still more tedious detailed descriptions of operative technique.

You will have to bear with me if I tell you things which you already know, and urge, as do all "well brought up readers of papers," the importance of the early diagnosis; for it is true that, though we, as surgeons, may be to blame in that there is no unanimity of opinion as to the best method of operating, and that our operative mortality has been unnecessarily high, still the opportunity does lie with the practitioner who first sees the patient to recognize the disease early when it presents itself in such a stage that radical cure may be attempted.

The clinical basis of this paper rests on the analysis of the case-histories of 58 patients suffering from cancer of the rectum, who have been admitted to the Royal Victoria Hospital during the past five years. Of these, seventeen were considered to offer some chance for radical removal; and of these, six were not operated upon for some reason, other than the extent of the growth. If we take it that some of these six would have been found on exploration to be beyond an attempt at radical cure, it will be seen that of this small series only about one-third were found in such a state as to make the attempt worth while. This is a rather better percentage than the estimate of Lockhart Mummery that four-fifths of the cases entering St. Mark's Hospital are already inoperable. I do not mean to infer that the fault of delayed recognition lies wholly with us, for if we go to our "wood pile" we find that 21 had symptoms for only six months, or less, before a diagnosis was made. It may well be that among these the prognosis would not have been materially altered had the diagnosis been made earlier, but there remain 26 whose symptoms had been clear for from one to five years before the disease was recognized. It is not unreasonable to presume that with earlier recognition a considerable number of these might have been brought into the operable class; for, be it remembered, almost all are capable of definite diagnosis by ordinary digital examination. The hard edge, the crater, the rigid constriction are almost unmistakable. We must face the fact that too many cases give a history somewhat cynically put down by the house surgeon in one instance, "The ulcer had been seen by the proctoscope three weeks after the onset of symptoms. Doctors were visited in Winnipeg, Vancouver, and San Francisco, all of whom gave him castor oil, even though for eighteen months he had been passing blood."

What then are the first symptoms, as they occur in these case histories, taken by five generations of house surgeons? Let me say at once that I do not include pain, alternating constipation and diarrhœa, ribbon stools, and cachexia. These are better forgotten, like the test of fixation of a breast cancer to the pectoral fascia. A diagnosis is merely for "record purposes" at that stage. Over and over again, so that the emphasis becomes monotonous, one reads in the histories of an increasing frequency of evacuation of a small movement, not loose, passed two or three times a day when such had

* Read at a meeting of the Montreal Medico-Chirurgical Society.

not been the habit; of an increasing tendency to constipation, when such had been the habit; of the passage occasionally of a little blood with the stool, generally attributed to hæmorrhoids; in other words, of a definite change of habit in the frequency and character of the stools. Could we but develop in ourselves the habit of invariably making a rectal examination on any complaint referable to the gastro-intestinal tract, there might be found the earliest symptom of all. Such an example is found among our series, when a routine examination revealed a small movable nodule in the rectal mucosa. It was removed locally. Only on section did it show its sinister character as an adeno-carcinoma. That was over a year ago, and the man is perfectly well to-day.

I am well aware that there are those who have no symptoms until the onset of a definite obstruction, which in some cases is early and in some late. I know too that some cases characteristically those carcinomata of the rectum which develop in young persons, are usually hopeless from the start. Yet, I will try to show from the reports of others, for ours are too few to have much weight as evidence, that in the early case the outlook is not so shadowed by failure as, even among surgeons, is generally believed.

What then of the pathological aspect, for it is on the character and growth-behaviour that the prognosis rests?

There are many terms used to describe the types of growth met with, such as scirrhus, colloid, encephaloid, but perhaps Ewing's grouping is as useful as any. He speaks of five, placed in the order of their frequency.

I. *Adenoma destruens;* a broad ulceration with raised edges tending to encircle the bowel and leading ultimately to obstruction. It is of the adeno-carcinoma type and will frequently be described as scirrhus.

II. *Stenosing fibro-carcinoma,* as its name implies, a hard band of scirrhus type, tending to obstruction as its early manifestation.

III. *Gelatinous adenocarcinoma;* a soft cellular growth tending to early ulceration and bleeding.

IV. *Papillary carcinoma;* a warty growth.

V. *Multiple carcinomata,* following polypoids.

There are one or two more, but these are so rarely seen that I leave them out.

It is believed that, except in the case of polypoid growths, there is no evidence to support the view that either hæmorrhoids or fissures are precursors of cancer.

It is the consensus of opinion among pathologists that, with notable exceptions, carcinoma of the rectum is relatively benign; that the growth remains localized for considerable periods, before extending by contiguity to neighbouring structures, or by metastasis to the regional lymph-nodes or other organs. The exceptions are found among two groups. Cancer of the rectum occurring in young persons almost invariably grows rapidly, and spreads widely and early by metastasis; so much so that it is hardly to be called operable. The second exception, as might be expected, is the soft cellular adeno-carcinoma. Besides this, as in all cancers, there is a wide variation in the degree of malignancy, depending probably more on the tissue activities of the host than on the growth character of the neoplasm.

At the onset, as is well illustrated by our one very early instance, the tumour begins as an irregularly growing group of gland-tubules. As occurred in our case there is an early infiltration of the muscularis mucosæ, following the lymph-channels. The tendency is therefore to encircle the bowel, since this progression corresponds to the direction of both lymph- and blood-vessels. It is this tendency which probably accounts for the rather slow lateral growth up and down the bowel. The bearing of this, when we come to examine the choice of operative method, must be remembered. In this connection we should recall the statement by Hausmann that, in a series of cases dying from carcinoma of the colon, the growth was found to be still confined to the bowel in 50 per cent; and another statement, from the Mayo Clinic, that the glands were invaded in but 45 per cent of the cases operated upon by them. In our own series, not numerous enough to turn into percentages, it is in only a few instances that a wide glandular extension was the reason given for not attempting the removal of the growth; much more frequent was the statement that the growth had become attached to neighbouring organs. A further evidence is afforded in that, among those found still capable of removal, the history in nine extended over a period of more than a year; in six over more than one

and one-half years. It is quite true, on the other hand, that many advanced cases gave only a short history. The direction and method of spread outside the bowel are also important factors in estimating the chances for removal. The spread anteriorly, with fixation to the bladder and prostate is almost prohibitive. It is not so serious in a female, because here the fixation is to the uterus and vagina.

Probably the most reliable description of the lymphatics of the pelvis is that given by Miles. There is a zone of downward spread, through the perineal skin, the ischiorectal fat and the external sphincter;

A zone of lateral spread, through the levatores ani, the retrorectal lymph-nodes, the lymph-nodes in relation to the branches of the internal iliacs, the prostate, the base of the bladder, the posterior vaginal wall, and the base of the broad ligaments;

A zone of upward spread, through the peritoneal folds of the pelvis, the pelvic mesocolon, the paracolic lymph-nodes, and a group of glands on the left common iliac artery. These zones were worked out by observing a series of cases of carcinoma, and noting the direction of the spread of metastases after operations for the removal of the growths.

There is no question but that, from anatomical grounds, the abdomino-perineal operation, which grew out of this knowledge, with its wide removal of the area of the superior hæmorrhoidal and the inferior mesenteric vessels, is in conformity with the ideals for the surgical removal of cancer anywhere. This postulates the belief, in which I concur, that up to the present we have to offer no better method of treating cancer of the rectum than its surgical removal.

I hope to be able to indicate that results far better than is generally believed may be looked for, both in regard to immediate mortality, and in regard to expectation of permanent freedom from recurrence. I am encouraged in this view by recent publications by Lockhart Mummery, and by tentative successes of my own which are too recent and too few to do more than encourage me to persevere. There is still no unanimity of opinion as to the method which will give the best results.

When one speaks of methods of operation in respect to cancer of the rectum, there will come into the minds of some of you at least the name Kraske; and if you have been present at, or, more particularly, if you have had the after-care of a patient operated upon by the Kraske method, there is little wonder that cancer of the rectum has a bad reputation in hospitals. Kraske first advocated his operation in 1885. It was indeed an improvement on the older types, where the rectum was split up and the growth dissected out, working from inside the rectum. In the Kraske operation, an incision was made over the rectum from behind and part of the sacrum removed to allow room. The section of the rectum containing the growth was cut out, and the two ends were sutured together. The operation failed for two reasons. The section removed was seldom sufficient, and the large cellular space in the hollow of the sacrum inevitably became infected. The mortality was high, and the functional result poor. Sometimes the ends could not be approximated: in these cases the lower end of the upper segment was brought out at the upper angle of the wound.

Following naturally on the investigation by Miles, already referred to, a combined abdomino-perineal operation was the logical development. It satisfied the requirements of all cancer removal, in that the bowel was removed wide of the growth, unnecessarily widely in fact, together with a maximal eradication of the possibly infiltrated lymphatics. It has been practised as a one-stage or two-stage operation, with a permanent colostomy, or with an attempt to reconstruct the bowel, and the consequent certainty of infection, as in the Kraske. It is strongly advocated by experienced surgeons to-day, notably in America by Daniel Jones of the Massachusetts General Hospital in Boston. It has one serious objection that even in the most experienced hands, it carries an operative mortality of 25 to 30 per cent. In our series, all the deaths were in those who had been operated upon by the combined abdomino-perineal route. It would seem to me that the advantages should be outstanding to justify such a death rate. I have in my own experience but three of these cases, and while two survived and one died, in both of those who survived the operation, recurrence took place; one I feel from a mistaken attempt to restore the bowel function, and one from unrecognized lymphatic spread. At this point I may be per-

mitted to state my belief that there is a mistaken sense of horror associated with the idea of an artificial anus on the abdominal wall. It was this feeling, in the case referred to, which led me to skimp the excision, in the effort to restore the continuity.

Since then, I have informed myself of the amount of discomfort or disability associated with such an artificial anus, and have been confirmed in my belief that it is not the horrible thing generally believed. I use no elaborate form of colostomy and find that the patients get on very well. They learn to manage the bowel movements and to prevent soiling. There is ordinarily no recognizable odour that cannot be overcome with care. The hardest thing to avoid is the escape of gas with its unmistakable splutter; otherwise, men and women may learn to go about among their friends without embarrassment and without offence. It is this dread, however, which is responsible for the attempt to restore the bowel function, which rarely succeeds, discouraging the surgeon and giving rise to a loss of confidence among the profession.

There is another type of resection, advocated by W. J. Mayo, and suitable for a certain number of recto-sigmoid growths. It is an abdominal operation. It involves a permanent colostomy, and consists in the cutting of the rectum low down; the closure of the lower end; the dissection of the rectum and sigmoid upwards, where it is cut and the stump of the proximal bowel brought out as a colostomy. This is only useful where the growth is sufficiently high that the section at the pelvic floor is satisfactorily below the growth. I had one such case recently, in which the results so far have been satisfactory.

For a good many years now, Lockhart Mummery has been practising a method of perineal excision of cancer of the rectum, superficially like, but essentially very unlike the older Kraske. He published the results of 200 cases of excision of the rectum by this method in the July number of the *British Journal of Surgery*, 1926. The results are so encouraging that I cannot but feel that his method has established itself as the operation of choice in all except the rather high recto-sigmoid growths, such as have been referred to already. In considering his results, this must be borne in mind. He states that 82 per cent of the cancers of the rectum are beyond surgical cure on admission to the hospital; less than one-fifth are operable. In our series one-third were considered operable, but we had 38 per cent mortality, all the deaths being after the abdomino-perineal operation.

Put briefly, the operation is performed in two stages. A permanent colostomy is established a week before the excision. The resection is carried out by the perineal route. The anus is first closed with a subcutaneous purse-string suture. The tissues removed consist of the entire rectum and a few inches of pelvic colon, together with the skin surrounding the anus for an inch or more, the levator ani muscles, most of the fat in the ischio-rectal space, the greater part of the meso-rectum, and all the glands lying in immediate relation to the bowel. The actual difference between the amount of tissue removed and that removed by the abdomino-perineal is very slight.

When we come to immediate results he reports three deaths in one series of 100 operations; in another 100, 14 deaths; a total of 17 or 8.5 per cent in a series of 200 rectal resections by this perineal route.

In the series 95 had been operated upon more than five years before, and of these 45 were still without recurrence; 37 had recurred; 6 were dead from other causes; and 7 were untraced.

They were divided into classes; A, very favourable; B, medium; and C, very bad, where the growth was large and fixed. In class A there were 30; with 22 well after five years, and 8 recurrences. In class B there were 43; with 19 well after five years, and 24 recurrences. In class C there were 9; with 4 well after five years, and 5 recurrences. Class A shows that with picked favourable cases the percentage of cures on a five-year basis is very high.

I have few conclusions to formulate. We must acknowledge that no other surgeon has published results both in a low immediate mortality and freedom from recurrence approaching those of Lockhart Mummery.

It must be accepted that the perineal resection, with a permanent colostomy, is the operation of choice.

The permanent colostomy, according to his statement, in agreement with our own experience, may be viewed without that repugnance which makes it difficult to recommend. It is certainly

far more under control, and less a disability, than an uncertain or incompetent sphincter in the normal position.

Of the technical difficulties of the Lockhart Mummery perineal resection I speak with assurance, since I have had opportunity on two occasions to practise it since his publication. Of these two cases I may state that both are alive. I nearly cut the urethra in one, and avoided it in the second.

With such a relatively hopeful prospect, we ask practitioners to try and bring some of that large group of inoperable cancers of the rectum within the very favourable or medium group? This can only be done by constant care; by considering as suspicious of cancer all symptoms referable to the bowel which are a persistent deviation from the individual's habit; and by proving the patient to be free from cancer before considering him free.

A METHOD OF PREPARATION OF A LIVER EXTRACT POWDER FOR THE TREATMENT OF PERNICIOUS ANÆMIA

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COHN and others working in collaboration with Minot and Murphy[1] have developed a method of preparing a liver extract which has been proved effective as a substitute for liver feeding in the treatment of pernicious anæmia. The principles laid down by Cohn in his original communication on the method of preparation of an active extract of liver were as follows:—

Raw liver was minced and suspended in an appropriate amount of water and the p^H adjusted to 9. Insoluble material was removed and found to be inert. The watery solution of soluble extractives was adjusted to p^H 5 and the precipitate which resulted was removed. This was found also to be inert. The filtrate was heated to 70° C. and the heat-coagulable proteins thereby removed. The filtrate was extracted with ether and no loss of potency was noted. The watery solution at this stage was proved to be effective in the form either of a syrup or powder prepared by simple concentration *in vacuo*. An active powder was prepared by adding absolute alcohol to the concentrated watery solution above mentioned until the concentration of alcohol in the mixture was approximately 95 per cent. The precipitated material was dried and powdered. This powder fed in daily doses of from 9 to 14 gms. caused a prompt and rapid improvement in the blood picture, and the clinical condition of three patients suffering from pernicious anæmia.

The Cohn extract has recently been made available by the Eli Lilly Company who are marketing a liver extract (No. 343) prepared by them under the direction of the Committee on Pernicious Anæmia of the Harvard Medical School. The published method of preparing this extract is as follows:—[2]

Livers from edible animals are ground directly into water and the mixture adjusted to the isoelectric point(approximately p^H 5 to 6). The mixture is then heated to coagulate proteins, (approximately to 80° C.) stirred for thirty minutes and filtered. The filtrate is reduced *in vacuo* to a small volume and enough 95 per cent alcohol added to produce a concentration of 70 per cent. The precipitate which is formed is discarded and the filtrate reduced to a small volume added to absolute alcohol and the precipitate separated, dried *in vacuo* and powdered.

The extract is a yellow powder having a not unpleasant taste, almost entirely soluble in water. It is precipitated from the aqueous solution by alcohol and acetone. It is insoluble in ether.

The extract of liver as prepared by the method outlined below is essentially crude as compared to the Cohn final product. There is also nothing original in its preparation, as the principles developed by the Harvard investigators have been kept in view throughout. It has this advantage that its preparation is fairly

simple and at the same time not costly. Also the amount which has to be administered in treatment is not much greater than has been advocated for the more highly refined product.

The preparation of the extract is as follows: Frozen liver is allowed to soften and is finely minced while still in the semi-frozen state. It is then dropped in boiling water (approximately four volumes) and violently agitated. The temperature is not allowed to become higher than 80° C. It is kept at this temperature for a few minutes only and is then rapidly transferred to a large canvas bag and the juice immediately expressed. The press juice is transferred to a large number of enamel meat trays and these trays are placed in a wind tunnel. If there is any delay in the process at this stage possible bacterial action may be circumvented by the addition of a phenol preservative or by adequate acidification of the press juice. By means of a hot air blast through the tunnel the press juice is reduced to a small volume without itself becoming heated. Concentration by the air blast is carried on until the liquid is of a syrupy consistency. It is then transferred to a large enamel container and two volumes of acetone are added. The acetone precipitate is collected on large filters and allowed to drain. It is then air-dried at a temperature not exceeding 60° C. The air-drying can be conveniently carried out by placing the precipitate again in shallow trays in a wind tunnel or over steam radiators. When the drying process is completed the solid residue is powdered in a drug mill and is ready for use. It is most readily and satisfactorily administered in gelatine filled capsules.

Some points of interest in this method are:—

1. The use of only one reagent, namely acetone.

2. A very large percentage of the acetone used can be easily recovered.

3. The non-necessity of the use of a vacuum at any stage.

4. The effective precipitation with acetone at 67 per cent concentration.

5. The non-necessity of adjusting p^H.

6. From 15 to 17 grammes of the extract powder are equivalent to 1 pound of fresh liver.

A much higher fresh liver equivalent per gramme of extract can be attained by making the press juice, either fresh or concentrated, acid to one-quarter of 1 per cent with acetic acid, bringing to the boil, filtering and then proceeding as has been outlined above. This modification has a serious drawback. When the heat-acetic coagulable material has been removed the precipitation with acetone later yields a precipitate which is extremely sticky and difficult to handle. Leaving the heat-acetic coagulable proteins in the extract makes for a simpler and more adaptable process.

Extract, the equivalent of 1500 pounds of fresh liver, has been used in the treatment of pernicious anæmia cases by a number of clinicians. Dr. Adamson[3] of Winnipeg has recently reported two cases in which the extract has been used with excellent results.

It is too early as yet, however, to make any specific claims for the effectiveness of this extract. Nevertheless the results obtained by clinicians who have been good enough to test out the extract in pernicious anæmia cases in doses of from 10 to 15 grammes daily have been so uniformly good that a much wider trial would seem to be warranted.

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Reduction of Cervical Dislocation.—Victor F. Marshall and Clarence C. Reed, Appleton, Wis., recommend the method of Walton. The essentials of Walton's plan of reduction are: (1) dispensing entirely with extension, and (2) using only retrolateral flexion and rotation. The proper method is simply to raise the depressed process and rotate. This can be accomplished only by extending the head obliquely backward toward the right or left as the case may be and using the transverse process on the same side as a fulcrum. The ligaments which have held the vertebra firmly in its faulty position do not offer opposition to this movement, so that force is not required first to elevate in this way and then to rotate to the proper position. The patient should be thoroughly anæsthetized (nitrous oxide), and should be in the sitting position This gives freedom of movement and prevents confusion of the proper movements of reduction. —*J. Am. M. Ass.*, July 16, 1927.

XUM

THE EFFECTS OF LIVER IN THE DIET ON THE BLOOD OF NORMAL PERSONS

BY BEAUMONT S. CORNELL*

From the Department of Medicine, McGill University, Montreal

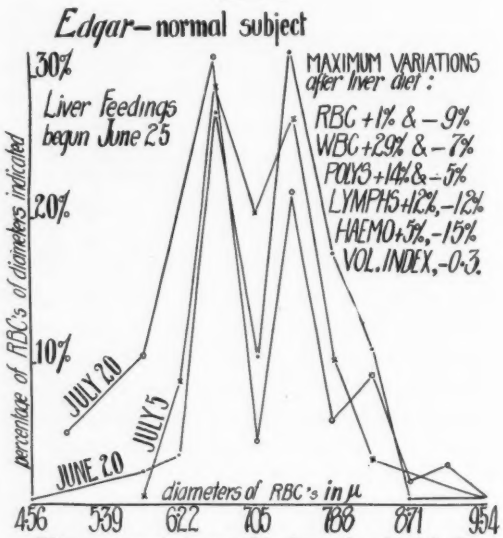
THE effects of liver diet on the blood in pernicious anæmia, as described by Minot and Murphy and the Boston group, are so remarkable and constant as to appear specific.

In order to determine the effects, if any, of liver consumption on the blood of normal persons, four healthy male adults were selected. In each case two preliminary blood-examinations were made, after which the diet was begun and kept up roughly for a month in each case, with periodical blood examinations.

TECHNIQUE OF THE BLOOD EXAMINATION

Hæmoglobin was determined by Palmer's method; the volume index, by Haden's method. The red blood-cells were counted by the use of two standardized pipettes and the results of the counts averaged in each record. The white blood cells were similarly counted. Differential leukocyte counts were made on 300 cell-counts

CHART I



This represents in graphic form the chief findings in the first case.

* Duke University Medical Research Fellow.

TABLE I.

Edgar.—Normal subject.

	June 16th	*20th*	*27th*	*July 5th*	*9th*	*14th*	*20th*
Volume index	4.4	4.4	4.4	4.1	4.1	4.4	4.3
Hæmoglobin percentage	102	101	85	92	106	92	92
Red blood corpuscles	5,452,000	5,412,000	5,495,000	5,065,000	5,030,000	4,960,000	5,070,000
White blood corpuscles	6,400	6,500	6,100	6,300	6,500	8,200	6,000
Differential count (percentage):							
Polymorphs	63	67	64	65	72	68	66
Eosinophiles	1	½	½	½		1	2
Mast cells	½		½	½			
Lymphocytes	33	29	33	29	27	27	29
Large monos	2	2	3	2		2	2
Transitionals	1	1	2	1	1	2	½
Diameter counts:							
Number of cells counted	266	265	293	324	274	249	262
Microns	per cent	per cent	per cent	per cent	per cent	per cent	per cent
4.15							
4.56		.37	.34				
4.98	1.5						4.6
5.39							
5.81	8.65	2.64	2.05	2.16			10.3
6.22	7.9	3.77		9.	.73		11.
6.64	27.44	27.17	13.65	28.4	11.67	5.62	30.5
7.05		10.56	7.5	20.7	20.8	7.23	3.4
7.47		30.6	30.37	28.	32.84	34.94	21.37
7.88	9.4	15.47	20.82	9.56	27.27	36.54	6.
8.3	9.3	10.97	22.5	2.16	6.1	15.66	9.
8.71		.75	.78		.3		1.5
9.13		.75	1.02				2.3
9.54	.4	.75	1.02	.3			.4
10.37							
10.79							

NOTE.—The feedings with liver-extract began on June 25th.

TABLE II.

Clement.—Normal subject, with exception of pyorrhœa.

	June 20th	23rd	27th	*July* 7th	11th	15th	23rd
Volume index	4.4	4.4	4.5	4.5	4.6	4.4	4.4
Hæmoglobin percentage	112	107	100	97	100	92	92
Red blood corpuscles	4,670,000	5,430,000	4,760,000	5,200,000	5,640,000	4,710,000	5,260,000
White blood corpuscles	12,500	9,300	17,875	12,400	8,200	10,200	12,000
Differential Count: (percentage)							
Polymorphs	59	64	67	65	68	59	59
Eosinophiles					1	1	1
Mast cells					½		
Lymphocytes	39	35	30	33	25	39	34
Large monos	1		2	1	3	1	4
Transitionals	1	1	1	1	1		2
Diameter Counts:							
Number of cells counted	273	223	411	422	285	243	256
Microns	per cent	per cent	per cent	per cent	per cent	per cent	per cent
4.15							
4.56							
4.98							
5.39			.24				
5.81	.36	.44	.73			.82	
6.22	2.2	1.3	.73	.23		.82	
6.64	22.34	8.5	7.54	1.44	3.5	11.5	3.12
7.05	22.7	19.3	21.8	5.45	9.48	15.6	4.5
7.47	29.3	35.9	41.7	18.7	32.3	27.57	18.7
7.88	19.	27.2	22.1	38.39	42.1	35.39	51.5
8.3	4.	5.8	4.1	28.7	10.9	8.23	21.5
8.71		.44	.24	1.44	.7		.4
9.13		.44	.24	4.5	.35		
9.54				1.44	.35		
9.96				.71	.35		
10.37				.48			
10.79							

NOTE.—The feedings with liver-extract began on June 25th.

TABLE III.

Edwards.—Normal subject.

Volume index	4.6	4.5	4.6	4.6	4.6	4.6	4.6
Hæmoglobin percentage	112	99	97	93	97	93	107
Red blood corpuscles	5,490,000	5,025,000	5,650,000	5,590,000	5,260,000	4,900,000	5,330,000
White blood corpuscles	8,200	6,800	7,400	5,800	7,200	7,200	5,800
Differential Count: (percentage)							
Polymorphs	67	65	74	72	72	65	
Eosinophiles				1			
Mast cells				½			
Lymphocytes	29	33	24	23	23	31	
Large monos	2	2		2	2	2	
Transitionals	2	1	2	2	2	1	
Diameter Counts:							
Number of cells counted	255	205	286	251	240	224	230
Microns	per cent	per cent	per cent	per cent	per cent	per cent	per cent
4.15							
4.56							
4.98							
5.39							
5.81							
6.22	.39						
6.64	1.57	2.19	1.4	.78	1.25	.88	2.60
7.05	7.44	6.78	7.	1.99	5.41	5.34	12.17
7.47	28.5	30.7	21.3	15.54	29.16	49.55	43.9
7.88	43.5	45.3	47.3	53.4	49.58	38.4	27.4
8.3	17.1	11.7	19.2	25.5	14.1	5.34	14.
8.71	.39	.43	2.44	1.59	.41	.44	.43
9.13	1.57	1.31	.34	.78			
9.54	.78	.43	.34	.39			
9.96			.34				
10.37							
10.79							

NOTE.—The feedings with liver-extract began on June 23rd.

XUM

TABLE IV.

Alfred.—Normal subject.

	June 22nd	25th	29th	*July* 6th	12th	18th	23rd
Volume index	4.3	?	4.2	4.2	4.2	4.2	4.2
Hæmoglobin percentage	96	99	97	95	97	96	99
Red blood corpuscles	5,254,000	5,075,000	5,155,000	5,660,000	5,250,000	5,400,000	4,900,000
White blood corpuscles	6,800	6,400	5,400	6,400	7,400	6,600	7,200
Differential Count: (percentage)							
Polymorphs	67	68		64	65	74	
Eosinophiles				2	1		
Mast cells				½			
Lymphocytes	30	29		31	32	24	
Large monos	1	1		1	1	½	
Transitionals	1	1		1	1	1	
Diameter Counts:							
Number of cells counted	251	293	261	248	302	286	250
Microns	per cent	per cent	per cent	per cent	per cent	per cent	per cent
4.15							
4.56							
4.98							
4.39		.4	.41				
5.81	.4			.4	.43	.4	.4
6.22		7.2	.82	.8	.86	4.89	
6.64	12 7	10.8	16.5	5.5	7.79	12.65	5.71
7.05	12.3	32.4	17.3	8.3	12.12	34.3	14.7
7.47	39.4	37.2	32.5	35.5	31.9	33.47	35.5
7.88	29.9	10.	30.04	38.3	37.66	10.20	36.4
8.3	4.8		2.47	10.75	9.95	5.2	7.4
8.71	.4			.4			
9.13					.86		
9.54							
110.37							
10.79							

NOTE.—The feedings with liver-extract began on June 27th.

in each instance. The diameter measurements were made directly with a micrometer eye-piece previously calibrated on a stage micrometer. Differences of about half a micron could be appreciated.

TECHNIQUE OF FEEDING

Half a pound of fresh calf's liver was ground in a meat-grinder, and covered with cold distilled water for one hour at the room temperature. The mixture was frequently stirred, and finally strained through a double layer of cheesecloth. Only the filtrate was used, and this amount was given daily to each individual, seasoned by flavouring to taste.

RESULTS

A study of the tables shows that the percentage of hæmoglobin and the number of red cells remained constant. The numbers of the leukocytes of various types remained almost perfectly constant. The diameter measurements showed only insignificant changes, while the practical constancy of the volume-index indicates that cell-volume was unaffected.

CONCLUSION

Liver in the diet, over a month's time, exerted no important influence on the normal pigment or the formed elements of the blood, in the case of four healthy persons.

Mr. A. M. Samuel, Financial Secretary to the Treasury, in the course of his speech at the dinner of the Woking Chamber of Commerce gave an interesting example of what British industrialists were capable of doing. He said Britain led the world in biochemical products. As the result of careful research, the British chemical industry, by irradiation with ultra-violet light of a substance called ergosterol, were now producing commercially vitamin D. It was not until February of last year that the research workers at the National Institute of Medical Research, Hampstead, discovered ergosterol, the substance which, by irradiation with ultra-violet light, produces vitamin D. This synthetic vitamin D is now available in the form of small pellets. It has a sweetish taste, like chocolate and the best form of vitamin D is "radio-malt." This is a substance resembling the ordinary cod-liver oil and malt, but it is very easily digested, and tastes like toffee.—*The Weekly Times*, Feb. 2, 1928.

THE PRODUCTION OF A NEW TUMOUR*

BY WILLIAM B. BREBNER, M.B., B.Sc.

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THIS brief preliminary report records the production of a new tumour in fowl by treating minced chicken-embryo with an extract of rabbit-placenta.

In this laboratory the Rous chicken tumour No. 1 has been used in a number of experiments, and a large number of transplants have been made over a period of two years. The histological characteristics are essentially those described by Rous,[1] and the tumour usually retains its morphological appearance, no matter what variations are made in the manner of its production.

We have repeated Carrel's experiment[2] of producing a tumour in fowl by treating embryonic pulp with arsenious acid. Our tumours have been transmissible by Berkfeld filtrate, frozen and dried tumour, as were Carrel's. My recent colleague, Dr. A. W. M. White,[3] has conducted some experiments in which he observed that the tumour arose from embryonic cells and not from those of the host. Bisceglie[4] reported the production of tumours by treating chicken-embryo pulp with an extract of rat and mouse tumours. I have repeated this experiment eight times, using rat and mouse tumours as the source of the extract. A total of 38 birds was injected with negative results. On five occasions, in a total of 24 birds, we injected embryonic pulp alone and have never produced a malignant tumour by so doing. This observation is amply confirmed in the literature.

Gye,[5] in 1925, advanced a new hypothesis regarding the origin of tumours and adduced considerable evidence in favour of his theory. His experimental proof was largely derived from the use of an infective aqueous extract of the Rous tumour. Gye took equal parts of this extract; one portion he inactivated by heat, the other by chloroform. Neither portion would then alone produce tumour, but when added to each other, in equal portions, the mixture was infective. Gye concludes from this that an extract of the Rous tumour contains two factors concerned in tumour-production. He goes farther and finds that he can supply the chloroform-killed factor by substituting the fluid from anærobic cultures of rat, mouse and human tumour tissue. This factor he calls "virus." The other factor is peculiar to chicken tumour, and he terms it the "specific factor."

Murphy's[6] experiments show that the chloroform inactivated factor (Gye's virus) can be supplied from anærobic cultures of placenta and chicken embryonic tissue. Murphy used placenta in his cultures, since Warburg[7] had shown that tumour and placenta are comparable metabolically, in that they both have a high ærobic and anærobic glycolytic activity. All growing tissues have a glycolytic function, and, under ordinary conditions, respiration supplies the energy necessary for the resynthesis of the lactic acid formed, so that practically none accumulates. Tumours, placenta, and some other tissues, are a notable exception in that the glycolytic function predominates over the respiratory function, and large amounts of free lactic acid accumulate.

As a consequence of the observations of Carrel, Warburg, Murphy and Hawkins, and attempting to obviate the necessity of using an extract of any tumour in the experiment, I have combined the embryonic cells, as used by Carrel, and by his work shown to be susceptible cells with a simple extract of placenta, since these tissues, placenta and tumour, have some points in common.

On October 20, 1927, two placentæ from a rabbit were removed at or about term. These were minced with scissors and mixed with 10 c.c. of normal saline. The mixture was then shaken and allowed to stand for thirty minutes after which it was centrifuged, and 10 c.c. of the supernatant fluid were added to the minced pulp of three 8-day chick-embryos. Of the

* Received for publication February 21, 1928.

resultant mixture four cubic centimeters were injected into the pectoral muscles of each breast of two fowls (B 101 and B 227.) On November 9th, chicken B 227 died of some intercurrent disease and showed no signs of tumour on post mortem. The same day (Nov. 9th) No. B 101 was examined and was found to carry a nodule in the left breast. On December 5th, chicken B 101 died. It was found to have a tumour, measuring 1.5 cm. by 2 cm. in the right breast, and one measuring 4 by 4 cm. in the left. In each case, the tumour was non-encapsulated and actively invading the muscle-tissue in all directions. The tumours were grayish-white in colour, firm in consistency, not very vascular, and not nodular. On cross-section, the tissue was firm and homogeneous with no remnants of embryonic tissue, *e.g.*, cartilage, bone, or epithelial structures. The central portion was somewhat friable. On further post mortem examination numerous metastases were found. The myocardium was largely replaced by clear white nodules, both discrete and confluent. These were homogeneous on cross section. The lungs had almost lost their characteristic colour, because of the number of secondary deposits.

The microscopic examination of tumour B 101 showed it to have no capsule; the cells were actively infiltrating and replacing the muscle. The appearance varied rather widely from field to field. Some areas were composed of dense collections of cells, whilst in other places the arrangement was almost myxomatous. There was no suggestion of organization in the tissue, and the central portion was necrotic. The cells were, for the most part, large, and had abundant cytoplasm and somewhat pale staining, reticulated nuclei. They were, we believe, rather undifferentiated mesoblastic cells. There were, also, a few lymphocytes and a number of giant-cells scattered throughout the section. This microscopic appearance was closely duplicated in the metastatic deposits. Plates 1 and 2 will supplement this description.

A small fragment of the breast-tumour was implanted in each breast of three chickens, and a fragment of a metastatic deposit in the heart was implanted in each breast of three additional chickens. The first transplants to these 6 chickens, numbering from B 291 to B 297, and subsequent transplants to other birds, have been 100 per cent successful. The transplant in each case produced a tumour largely replacing the pectoral muscles, and on post mortem examination metastases were always present. In no case did the tumour retrogress and it usually caused the death of the bird in thirty-five days. The tumour is now in the fourth generation. Microscopically it has undergone very little change. The predominating cell is still the large one with an abundant cytoplasm and a reticulated nucleus (Plate 3). This experiment has been repeated, using an extract of guinea pig placenta, with uniform success. I have proven tumour in a total of six instances on the death of the host, and two other birds are alive and carrying tumours. Using various forms of extraction, a large tumour has been produced in as short a time as twenty days. In each case the tumour has been transplantable. In one case, namely chicken B 311, an attempt was made to transmit the tumour by means of a filtrate through a number 8 Mandler candle, with negative results.

All our experiments on fowl are carried out on a pure strain of Plymouth Rocks, supplied to us through the great kindness of Prof. W. R. Graham of the Ontario Agricultural College at Guelph.

Extracts of other tissues are being studied for their effect on embryonic cells, and experiments are under way to determine the essential factor or factors in placental tissue responsible for the changes created. The results will form the material for a subsequent report.

SUMMARY

1. In this experiment an extract of placenta replaces the arsenic, tar and indol, of Carrel, and the tumour extracts of Bisceglie, in stimulating embryonic cells into malignant proliferation.

2. The tumour so produced is transplantable and highly malignant.

3. The extraction of an unknown substance capable of producing malignant changes from such a normal tissue as placenta, which is comparable with malignant tissue metabolically, may

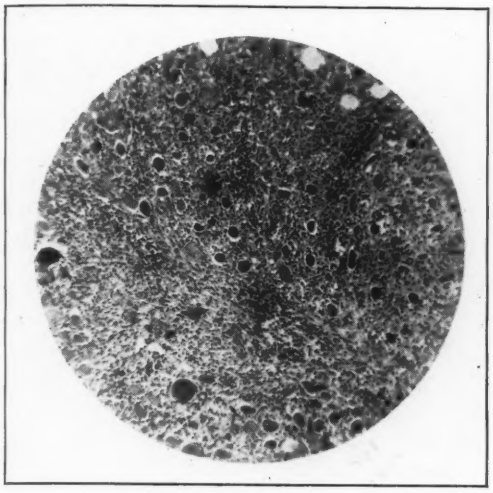

PLATE I.

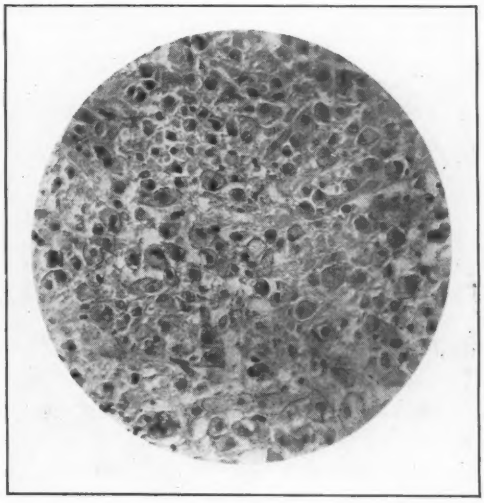

PLATE III.

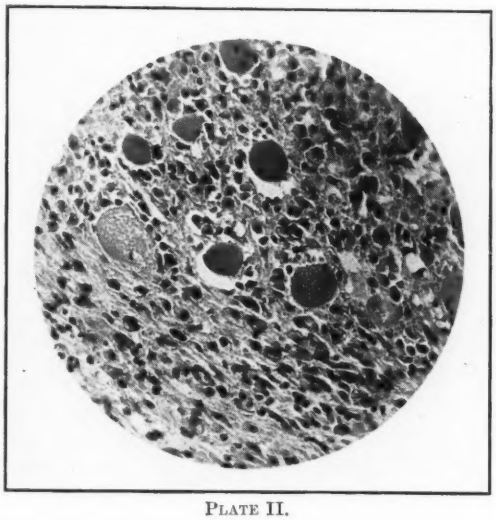

PLATE II.

provide a connecting link between the work of Gye and Murphy.

I should like to acknowledge the interest and many kindnesses of the Department of Pathology, and, in particular, of Professor Klotz.

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Cancer in Canada.—The Canada Year Book, 1926. Canada Dominion Bureau of Statistics, Ottawa, 1927. The number of deaths from cancer in 1925 was 5,525.

Death rates for cancer, per 100,000 of population:—

1921	75.
1922	78.
1923	78.
1924	82.
1925	81.

Cancer was the cause of 8.3 per cent of all deaths during 1925.

A hundred years ago live medical journalism was represented by one medical weekly paper and one or two monthly papers; it is now represented in every inclusive library catalogue by four or five columns of print naming general and special publications. All this competition and activity imply long life and valuable responsibilities for general medical journalism. At first sight the function of the general paper, some might think, would lapse into a kind of card-index, wherein readers would find references to special work in some of the numerous special papers; and such a fate would lie before the general medical journal if the science of medicine stood still. But as this can never happen, and as all the signs of the times point to rapid and far-diverging progress, it will always be necessary to have the general medium where the new ideas can be collated, sifted, amended, and recorded.—Sir Squire Sprigge, *The Glasgow Medical Journal*, February, 1928.

XUM

A CASE OF EXOPHTHALMIC GOITRE COMPLICATED WITH TOXIC ADENOMA TREATED BY LEAD IONIZATION

BY JAMES MILLER, M.D., F.R.C.P.E., P. M. MACDONNELL, M.D. AND A. F. G. CADENHEAD, B.A.

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THE following case is interesting from several points of view. The patient, a female, aged 46, a milliner by profession, was admitted to hospital on November 8, 1926, complaining of loss of weight, weakness, shortness of breath, difficulty in swallowing and a large swelling in the neck. The personal and family history revealed nothing of any significance. The patient was married and had had two children.

About five years prior to her admission the patient noticed a swelling in the front part of her neck which increased steadily until about a year ago she began to have difficulty in swallowing. Latterly she was only able to swallow liquids. The loss of weight had been going on for about two years and amounted to more than one-third of her original body weight. During the last year she had been practically an invalid.

Examination showed a very emaciated woman with protuberant staring eyes. In bed she had to be propped up in a sitting posture. Her breathing was rapid, about 30 per minute and her pulse was 100. There was a very large swelling situated on both sides of the trachea, apparently an almost symmetrical enlargement of the thyroid gland. The swelling might be likened in size to two tangerine oranges placed one on either side of the neck. The mass stood out so far from the surrounding structures that the finger could almost feel the posterior aspect of the growth. The lower border of the swelling disappeared behind the sternum. There was dullness over the first and second interspaces, three inches to right of midsternal line and one and three quarter inches to left. The mass was very firm to the touch and presented an even surface. Apart from the area of substernal dullness the lungs were resonant except over the left lower lobe. The chest was explored at this point and 20 ozs. of fluid withdrawn. The fluid was blood stained, did not clot and showed lymphocytes with a few endothelial cells and polymorphs. Cultures proved negative. The heart was enlarged, the left border being five and one-half inches from the midsternal line. Auscultation revealed nothing of note. Very marked rapid pulsation was noted in the veins of the neck. Examination by electrocardiograph showed that auricular flutter of the two one type was present.

Examination of the blood showed: red cells 5,360,000; hæmoglobin, 70 per cent; white cells, 8,500.

The x-ray examination carried out on November 20th showed the following: There was a large rounded density above the heart shadow which blended above with the thyroid shadow and was taken to be a substernal extension of the gland. The base of the left lung was obscured by a shadow due to fluid. There was a suggestion of enlarged glands at the roots of both lungs, and the heart was displaced somewhat to the right.

The progress of the patient was not favourable. In spite of the administration of Lugol's solution (5 minims daily) and digitalis, her condition did not improve. Ice collars, ice packs and occasionally a hot water bag over the precordium were applied without result.

Owing to the failure of other methods and on the supposition that the enlargement was possibly due to a malignant growth, lead ionization was begun on November 23rd, the electrolyte used being nitrate of lead. Treatments were given every three or four days up till April, 1927. The average time of administration was fifteen to twenty minutes, representing about 10 milligrammes of lead per treatment. Only a small fraction of the lead would, however, actually enter the skin. During the period from November till April there were 35 treatments. A certain amount of burning of the skin was caused owing to the setting free of nitric acid.

After about eight treatments a marked im-

provement in all the symptoms was noticed. The patient was able to swallow liquids and soft solids readily. Her breathing was easier and she felt a great deal better. A second x-ray examination made on December 18th showed the following: "The transverse shadow in the upper part of the chest is somewhat smaller than it was at the previous examination." In April the patient was moving about the ward and as she was feeling so much better she did not wish the lead treatment continued. At this time the enlargement of the neck was scarcely noticeable except on close inspection. The exophthalmos continued and the heart was still rapid but flutter had disappeared. The question of surgical interference was considered, but after examination it was decided that the state of the heart negatived any such procedure. She left hospital on August 10, 1927.

She was again admitted on October 6, 1927. She was now very much worse. Her temperature was 100, her pulse 140. Auricular fibrillation was marked. Two further treatments with lead were given during October but without apparent result. In spite of active treatment she rapidly went down hill and died on November 5, 1927. A post mortem examination was carried out a few hours after death and resulted as follows:

Scarring and adhesions indicative of old tubercle were present in both lungs, and at the root of the left lung were some hard calcified glands. The lungs showed emphysema, œdema and congestion and from the bronchi beads of pus could be squeezed. The heart which weighed 500 grm. was dilated, the muscle pale and soft. The pericardial sac was obliterated by fibrous adhesions. The muscle at the apex was fibrosed and thinned, the endocardium thickened with several small thrombi attached. The coronary arteries showed patchy atheroma. The thyroid gland weighed 100 grm. The right lobe was small but the left was large measuring 8.5 cm. in length. On section the gland was a reddish brown colour with a glistening appearance. It was firm in consistence, and suggested a colloid type of goitre with a tendency to nodular development. Buried in the gland was a large almost perfectly circular tumour measuring 3.5 cm. across. It was yellow in colour with hæmorrhagic areas and cysts. It was separated from the surrounding thyroid by a thin but distinct fibrous capsule (Fig. 1). Below the thyroid gland in the anterior mediastinum was a mass of enlarged calcified glands.

The aorta showed atheroma with fatty change and calcification. The mucous membrane of the stomach was dusky in colour and showed some small hæmorrhages. Behind the stomach and above the pancreas was a mass of calcified glands. The liver showed slight roughening of the surface. It was pale from fatty change.

The suprarenals were not enlarged and appeared normal.

Both kidneys were reduced in size showing narrowed cortex and roughened surface with marked depressions

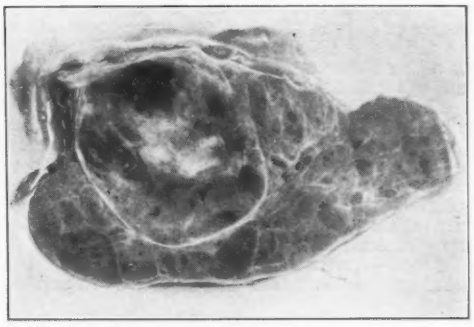

FIG. 1.—Section of thyroid gland showing fœtal adenoma surrounded by thin fibrous capsule.

of a cicatricial type. Nothing was noted in the intestines or bladder.

The uterus and adnexa were atrophied.

Thus there was evidence of old tubercle in the lung apices in the bronchial, mediastinal, and in the retroperitoneal glands; atheroma of aorta and coronaries; adherent pericardium, fibrous myocarditis and thrombosis in left ventricle; arteriosclerotic kidneys; œdema, congestion and early bronchitis in lungs; enlargement of the thyroid gland of a colloid type with a large fœtal adenoma.

MICROSCOPIC APPEARANCES

Thyroid.—The rounded nodule in the substance of the gland showed the characters of a fœtal adenoma. The gland acini varied much in size from spaces scarcely visible to large cystic cavities (Fig. 2). Colloid material

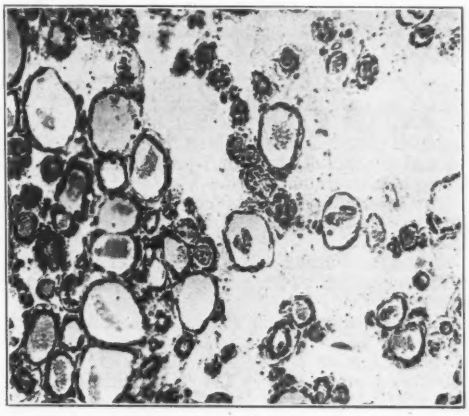

FIG. 2.—Section of fœtal adenoma showing acini varying in size lying in myxomatous stroma. High power.

was present, some of it staining bluish purple, some red with eosin. The stroma consisted of a non-cellular connective tissue, largely myxomatous with extensive hæmorrhages. Here and there were nodes of denser fibrous tissue some of these having needle like slits representing spaces which had contained cholesterin crystals. There was a fairly well marked capsule of a fibrous type separating the adenoma from the surrounding gland. The gland tissue distinct from the adenoma had a curious appearance. The acini varied much in size, some being distended and large, others small. The cells moreover varied in size both as regards their protoplasm and nuclei. Many of the nuclei were gigantic (Fig. 3) and some appeared to be free in the colloid

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having escaped from the cell body. None showed evidence of mitosis. In fact, the appearances generally were those of marked degeneration. In addition, there was a fair amount of interstitial change with areas of round cell infiltration.

Heart.—Wall of right ventricle showed fibrous adhesions to the pericardial sac and round cell infiltration. The muscle showed a diffuse fibrosis more marked towards the endocardial aspect. The fibres showed a well marked fatty degeneration, the globules of fat being unusually small. The wall of the left ventricle also showed diffuse fibrosis and the muscle fibres contained fatty globules.

Lungs.—A portion from the upper lobe showed well marked emphysema also several large nodules of fibrous

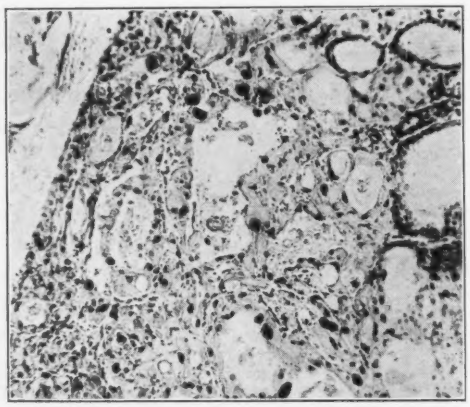

FIG. 3.—Section of colloid portion of thyroid gland. Note the irregular arrangement of the acini and the presence of degenerating gland cells some of them giant in type. High power.

change from old tuberculosis; one of these with a calcified centre. A portion from the lower lobe exhibited marked bronchiolitis and numerous catarrhal, pigmented (heart failure) cells in the alveoli. Red blood cells and polymorphs were also present in the air sacs. Fibrous nodules also occurred.

Aorta.—Portions of the aorta showed the typical appearance of atheroma with thickening of intima and lipoid deposit.

Stomach.—Portion of stomach wall showed well marked congestion of vessels, some cell infiltration and surface catarrh.

Liver.—Showed some evidence of chronic venous congestion. There was slight increase of fibrous tissue and thickening of the capsule. Areas of round cell infiltration were present in the portal tracts and there was a very marked fatty degeneration.

Kidneys.—Showed a degree of interstitial change with round cell infiltration of stroma and fibrosis of glomeruli. There was marked toxic swelling of the cells of the tubules with some fatty degeneration not so marked as in the case of the liver.

SUMMARY OF MICROSCOPIC APPEARANCES

There was found: a fœtal adenoma of the thyroid gland buried in a colloid goitre which showed marked evidence of degenerative change. The vessels showed the usual type of atheroma; the heart muscle exhibited a diffuse fibrosis and fatty change. There was fibrosis of liver and kidneys, also with fatty degeneration. There was bronchitis and some catarrhal pneumonia of lungs.

CHEMICAL ANALYSIS OF THYROID GLAND

One-half of the left lobe of the thyroid gland was submitted to chemical analysis with the following rather remarkable result. The fœtal adenoma being easily separable was analyzed by itself. The destruction of organic matter took an unexpectedly long time, particularly in the case of the adenoma. Lead was found in the thyroid proper to the extent of approximately 3 or 4 mgm. The total lead content of the gland would thus be 6 or 8 mgm. No trace of lead was found in the fœtal adenoma.

DISCUSSION OF CASE

The case is not a clear cut one owing to the presence of two distinct conditions namely a goitrous enlargement of the thyroid and a toxic adenoma.

It is impossible to be perfectly certain on these points but it would appear that in the first place the case was one of exophthalmic goitre. Exophthalmos was pronounced as was also tachycardia. So great was the enlargement of the thyroid that deglutition was interfered with and the question of malignancy was entertained. Lead ionization accompanied with other treatment produced a marked diminution in the size of the gland and an improvement in the patient's general condition. Owing to the state of the heart, however, surgical treatment was not considered feasible. From the findings at the post mortem, notably from the degenerative changes discovered in the main portions of the gland, and from the relatively large amount of lead it contained, it may be assumed that lead ionization was an important factor in the diminution in size of the thyroid. Here it may be noted that lead is mentioned as a cause of thyroiditis in *Tice's Practice of Medicine*, viii, 223. The patient left the hospital after nine months' treatment very much better than when she came in, but in two months' time she returned in a dying condition. The rapidity with which her symptoms became worse was no doubt in part caused by progressive degenerative changes, notably in the heart, but it was in large part due to the appearance and growth of a toxic adenoma. That this adenoma was probably not present during the time that lead ionization was being carried out is suggested by the absence

of lead from the growth. This fact may be explained however by the adenoma cells failing to adsorb the metal. In carrying out treatment by ionization the electrolyte diffuses into the tissues in all directions when these tissues are opposite in sign to the ion under consideration. One would therefore expect to find lead in all the tissues immediately surrounding the positive pole, although in diminishing amounts in the deeper parts. But as has been shown by Blair Bell (*Lancet,* Nov. 14, 1925), cells of high nitrogen content (such as embryonic cells and cells of malignant growths) adsorb lead ions selectively. Thus it may be that the goitre cells fixed the lead while the adenoma cells did not. This is unlikely as a fœtal adenoma behaves in other respects more like a malignant growth than does a simple adenoma and presumably than an adenomatous hyperplasia. It might be claimed that the thin fibrous capsule of the gland protected it from the lead. That is also improbable, the electrolyte penetrating in all directions irrespective of capsular barriers. No such barrier could filter out lead ions. On the whole therefore it seems probable that the case was originally one of exophthalmic goitre and that a fœtal or toxic adenoma developed during the last few months. This close relation between exophthalmic goitre and adenoma is well recognized. Bram (1920) quotes Marine and Graham as stating that autopsies on cases of exophthalmic goitre show hyperplasia in about 70 per cent, most of the remaining 30 per cent being adenomas with a few colloid goitres.

However, these are matters rather of theoretical interest. The practical deduction from the case is that treatment by lead ionization appears to cause degenerative changes in the cells of a parenchymatous goitre, producing at the same time marked diminution in the size of the gland and improvement in the patient's health. The method of treatment might well be tried in cases of exophthalmic goitre when the tumour is too large and the symptoms too serious to warrant surgical interference. As soon as the swelling has been reduced under the influence of the lead some one of the various surgical procedures might be adopted. That this was not possible in the case under consideration was due to the advanced stage of the disease and the various complications, — atheromatous coronaries and adherent pericardium,—from which the patient suffered. It may be added that at no time was there the slightest evidence that the patient suffered in any way from the lead treatment, except in the matter of the slight superficial burns due to the setting free of nitric acid on the skin.

We gladly express our indebtedness to Dr. W. T. Connell for having placed the case at our disposal for treatment and also for permitting its publication.

STUDIES IN MALIGNANCY*

By Hugh MacKay, M.D.

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SENILE keratoses are common pre-malignant lesions of the skin. They are found on the face, the scalp, the ears, the dorsum of the hands, the extensor surface of the legs and of the feet. They are all potential malignancies. They may be the precursors of either the rodent ulcer or the squamous-celled epithelioma. The rodent ulcer is only locally malignant. It does not form secondary deposits in the lymph-nodes. The reason is not known. The squamous-celled epithelioma, on the other hand, is endowed with the sinister power of metastasis in the nodes. Transitional forms, in which the rodent changes into the basal-squamous or the squamous-celled type, are recognized. These transitional types, of course, may then involve the lymph-nodes. The ultimate course of keratoses depends apparently in large measure on their location; those which are found on the upper part and the sides of the face tend to transform to the rodent group; in other situations, when they become active, they usually terminate in the squamous-celled growth. In my experience, while the squamous-celled epithelioma may appear on the upper part and sides of the face, this occurrence does not take place very often.

* Presented before the Staff Clinic, Winnipeg General Hospital, February 16, 1928.

This area belongs in the main to the basal-celled epithelioma. Keratoses due to arsenic commonly invade the palms of the hands and the soles of the feet. Why arsenic ripens this soil is not known. If degeneration supervenes, the neoplasm is of an exceedingly virulent type.

Coming to the localization of the malignant lesion proper, Sequeira has pointed out that if a line be projected backwards and outwards from the ala nasi to the most dependent part of the lobe of the ear, the area above this line will delineate the territory of by far the greater number of the rodent ulcers (Fig. 1, A-B). It

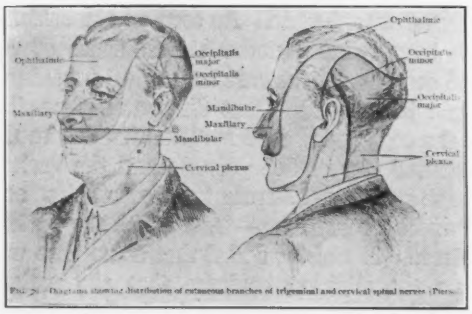

FIG. 1.—Cutaneous branches of trigeminal and cervical spinal nerves.

may be said, further, that the majority of malignancies in this situation belong to the rodent group. Broders has pointed out that malignant growths in the integument of the ear and the circumjacent area are rodents in the proportion of about one to two of the squamous-celled epitheliomata. This appears to be a transitional zone. Malignancies of the other areas of the face and the scalp belong almost exclusively to the squamous-celled order.

As a possible factor influencing the localization, it is interesting to review the cutaneous nerve distribution (see Fig. 1). MacKenna and other writers, from time to time, have pointed out that the rodent ulcer occurs almost entirely in the parts supplied by the branches of the fifth nerve. This predilection is more manifest in the case of the first and second divisions of this nerve. In the case of the third division of the trifacial, below the level of Sequeira's line, the incidence does not hold. In fact, in the writer's experience, with the exception of keratoses and epithelioma involving primarily the mucosa of the lower lip, this area has been found singularly free from the manifestations of both the pre-malignant and the malignant lesions. The irritant action of the sun's rays has been invoked to explain the incidence of these abnormalities on the face. The lower part of the face, however, is ordinarily unprotected by the clothing, and is the most exposed of all to weather conditions, yet it is relatively immune from attack. Malcolm Morris figures an advanced rodent ulcer which has swept over the areas of the first and second branch of the trigeminal nerve and is abruptly stalled at the border. Epithelioma very rarely invades the upper lip. Its affinity is for the lower lip. The skin of the upper lip is supplied by the second division, and that of the lower lip by the third division of the fifth nerve. In the case of the ear and the integument in juxtaposition to it we have an area supplied by branches from the cervical plexus (see Fig. 1).

Keratoses of the dorsum of the hand, if they degenerate, are almost invariably of squamous-celled formation.

ILLUSTRATIVE CASES

Case 1.—Mrs. W., aged eighty-two. There are numerous senile keratoses on the face and

FIG. 2.—*Case 1.*—Keratoses of face and dorsum of the hands; epithelioma of the neck.

on the dorsum of the hands, a few on the extensor surface of the leg and the feet. A tumour is present on the right side below the level of Sequeira's line. This tumour was excised by Dr. Lehmann. Dr. Boyd reported squamous-celled epithelioma of grade one malignancy. (Fig. 2).

Case 2.—Mrs. R., aged seventy-five. History of having had a large cauliflower growth removed from the left breast five years ago. Pathological report was not obtainable. No recurrence. Suspected cancer of the stomach, but laboratory tests were declined. Multiple senile keratoses of the face; rodent ulcer of the internal canthus of the eye; and epithelioma of the lower lip. The epithelioma cleared up under radium, but a few months later metastasis developed in the submental nodes. Patient is a non-smoker. (Fig. 3).

Fig. 3.—*Case 2.*—Keratoses of the face; rodent ulcer at internal canthus of the eye; epithelioma of the lower lip with metastasis in the submental nodes.

Case 3.—Mr. D. This patient had a rodent ulcer of the forehead which was excised by Dr. Lehmann, and a whole skin graft from the arm, widely excised in healthy tissue, was implanted. (Fig. 4). Healing took place promptly but recurrence followed, two years later, in the scar. Dr. Lehmann pointed out that the ulcer enlarged its boundaries altogether at the expense of the scalp; it did not invade the graft itself at any point. A probable explanation is that the graft was taken from the arm, an area in which the rodent ulcer is rarely if ever found, and it retained unimpaired its natural bent in this regard, in its new environment. Here was tissue transplanted to foreign soil, traumatized by surgical intervention, with its blood-supply and nerve-supply impaired. From these theoretically favourable conditions for spread, the malignancy turned aside. This case was discussed and these conclusions drawn at the extra-mural clinic held at Calgary, Alberta, November, 1926.

Fig. 4.—*Case 3.*—Rodent ulcer with whole skin implant.

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SACRAL ANÆSTHESIA

A COMPARISON WITH SPINAL ANÆSTHESIA AND A SURVEY OF THE ANATOMY, TECHNIQUE, AND CLINICAL APPLICATION

BY S. A. WALLACE, M.D., C.M., F.R.C.S. (EDIN.)

Kamloops

SACRAL anæsthesia is a combination of caudal and trans-sacral block. In the former the solution is injected through the sacral hiatus; and in the latter, through the sacral foramina. It affects a fairly definite area, which includes the coccygeal and perineal regions; the anus, rectum, urethra, and bladder. The solutions are injected at a site external to the dural sheath and come in contact with the nerves as they lie in the sacral canal and sacral foramina. In spinal anæsthesia, the solution, which usually consists of some preparation of stovaine, is injected directly into the subarachnoid space, generally between the lower lumbar vertebræ. There is complete anæsthesia below that particular segment to which the fluid reaches. In Great Britain spinal anæsthesia is much more popular than in America. Such leading surgeons as Lockhart-Mummery of London and Wilkie of Edinburgh use this method of anæsthesia as a regular procedure in perineal resections of the rectum for carcinoma; Sir John Thompson-Walker and John Everest use it in practically all their prostatectomies. The intense headache, which formerly followed spinal anæsthesia, has been prevented by lowering the patient's head about fifteen minutes after the injection, as the solution is fixed by then, and keeping it lowered for the first twenty-four or forty-eight hours. The headache was found to be due to a cerebral anæmia from the lowered blood-pressure. There is always a marked fall in blood-pressure, sometimes of 70 mm. Hg., or more. Older patients stand spinal anæsthesia best, as their blood-pressures are correspondingly higher; but I have used it on a young man of twenty-five to set double fractures of the legs, with no reaction. However, in the hands of the most expert and experienced, fatalities have been reported. Spinal anæsthesia is much easier to perform than sacral anæsthesia; on the other hand, sacral anæsthesia, if properly given, is quite safe. Hirschman states that sacral anæsthesia can be given in 90 per cent of cases, the very obese being the only ones that present difficulties. In the latter cases spinal anæsthesia is useful.

ANATOMY

A clear idea of the anatomical points of the sacral region is necessary to the surgeon for the successful induction of this form of anæsthesia. The sacrum, being formed by five fused segments, is convex behind and at the midline the blunted spinous processes form a ridge. The fifth spinous process is absent, and here a triangular opening into the sacral canal is found, called the sacral hiatus. The ridge of bone on each side of the sacral hiatus ends in a rounded prominence called the sacral cornu, the remnants of the fifth sacral spine. The hiatus is limited above by the fourth sacral spine. The opening is closed by the sacro-coccygeal membrane, a dense ligamentous structure stretching from the lower margins of the sacrum to the coccyx. The lower foramina are circular in shape, but the first has a longitudinal diameter twice that of the transverse, and the inner margin is formed by an overlapping ledge of bone which partly hides the canal. The fifth foramen may be present as a bony canal, when the ligament which forms its lateral boundary becomes ossified.

The sacral canal is triangular above, but becomes flattened below as it terminates in the sacral hiatus. The dural sac lies close to the anterior wall of the sacrum and ends opposite the lower border of the second sacral vertebræ. It is not attached to the periosteum, and the epidural space between is filled with fatty areolar connective tissue, lymphatics, and numerous blood vessels. The sacral nerves also lie close to the anterior wall, and carry with

them prolongations of the dura, which are not lost till the nerves reach the sacral canal, a fact which explains the slow appearance of anæsthesia in caudal block. Cathelin estimated the distance between the sacral hiatus and the termination of the dura as 7 cm. Thompson estimates it as 5.8 cm.

One of the difficult features for the operator is the frequent variation in the structure of the sacrum, the most important being as follows:—

1. Non-union of the sacral arches above the fifth. Usually the fifth is the only arch which does not unite, but frequently the fourth fails to unite, and this gives a much longer sacral hiatus; in rare cases the third does not unite and very occasionally there is a complete sacral bifida.

2. The sacrum may consist of six segments, giving five foramina and a greater distance between the sacral cornu and the posterior superior iliac spines.

3. The curve of the sacrum varies considerably, being more pronounced in males; occasionally the lower three segments show a marked curvature forward.

4. In some, the sacral foramina are much smaller than normal, making it extremely difficult to locate them with a needle.

5. The anterior and posterior walls of the sacral canal may approximate each other so closely in the lower part that it is difficult or even impossible, to pass a needle upward through the sacral hiatus.

5. A low termination of the dura is not common; Thompson found it in one case 4 cm. from the sacral hiatus.

In caudal and trans-sacral block, which affects chiefly the distribution of the pudendal plexus S. 2, 3, and 4, the anæsthetic area is confined to the coccygeal region, anus, lower part of rectum, perineum, scrotum, urethra, and bladder. The ilio-inguinal and genito-crural nerves from L 1 and 2 supply the base of the scrotum and penis in the male, and the labia majoris and clitoris in the female. The nerve supply of the bladder is from the nervi erigentes and nervus hypogastricus. The latter is purely sympathetic from the lower lumbar segments, but what sensory stimuli it carries has not yet been fully determined. The nervus erigens, from S 2 and 3 chiefly, has no connection with the sympathetic system, and so far as we know it carries most of the sensory stimuli from the bladder.

TECHNIQUE IN CAUDAL BLOCK

A technique such as the following has been found to give very satisfactory results. The patient is placed prone on the table and a narrow hard pillow placed under the suprapubic region, thus making the sacrum more prominent. The sacrum and surrounding region is now painted with 5 per cent picric acid solution in alcohol, which does not cause any burning or irritation in the folds of the skin, as tincture of iodine sometimes does. Any bony points or landmarks can now be marked with a 2 per cent mercurochrome solution.

The tip of the coccyx is now palpated with the left index finger, and, running the finger up the midline for about 5 cm., a triangular depression is felt at the lower end of the sacrum. This lies directly over the sacral hiatus, and at each lower angle the rounded prominences of the sacral cornua can be palpated. With a fine needle, an intradermal wheal is made just above the level of the cornua, and the novocaine solution distributed down to the sacro-coccygeal membrane. A needle with a fine bore (20 mm.) is now pushed directly downward through the intradermal

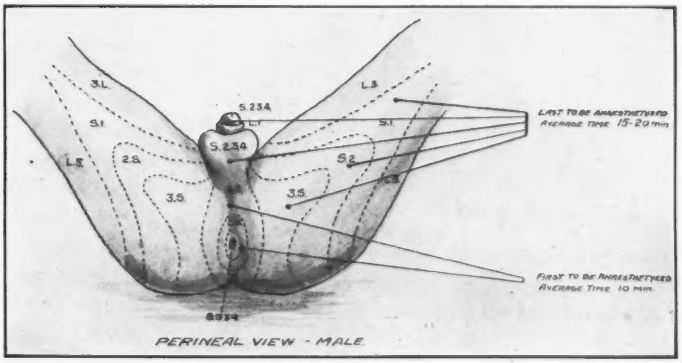
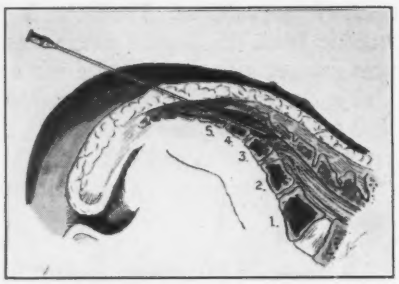
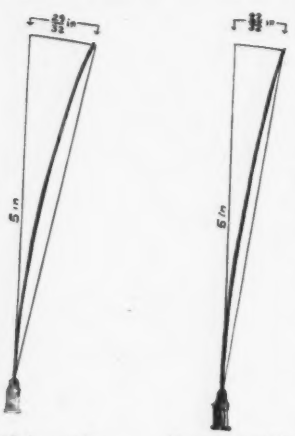


Diagram of the areas supplied by the sacral nerves. Usually in caudal block, the area supplied by the first sacral is only slightly anæsthetized.



Caudal needle in the sacral canal, lying in front of the third sacral segment and the tip in the centre of the canal.

wheal, till the bone is felt. The needle is now depressed, and, with the bevel pointing downward, it is pushed through the sacro-coccygeal membrane into the sacral canal. A few c.c. are now injected into the lower part of the sacral canal to make the introduction of the caudal needle painless. After a few moments this needle is removed, and the caudal needle, with the bevel pointing upward, is pushed through the same opening in the skin and down to the bone. The handle of the needle is now depressed, and pushing upward, the needle is felt to puncture the sacro-coccygeal membrane and pass into the sacral canal. If the point of the needle strikes against the posterior wall of the sacrum, pressure is made over the needle, after the method of Labat, with the index finger at the point where it passes through the skin, at the same time pushing the needle gently forward. If the needle impinges against the anterior wall, which does not often happen, the tip of the index finger is placed under the needle where it enters the skin, and the handle depressed, using the finger as a fulcrum, and the needle is pushed easily forward. The needle should pass upward in the canal a distance of from 4 to 6 cm., and the tip should lie in the centre of the canal, as there is less danger of puncturing the dura and veins, and, moreover, the anæsthesia is more rapid and satisfactory.



Male needle Female needle

Special caudal needles, the curves corresponding to the average male and female sacral canals.

The caudal needle is similar to a spinal puncture needle, except that the bore is smaller. If I have much difficulty in getting the needle to pass upward in the sacral canal, I now use curved needles about five inches long, fitted with stylets, which I have had specially made, as illustrated. The more sharply curved needle corresponding to the average male sacrum, and the more gradual one to the female sacrum. The bevel of the needle is on the convex side of the curve. I have found these needles very satisfactory in difficult cases, or where the forward curve of the sacrum is more pronounced than usual.

If there is any obstruction to the piston, the solution should not be injected, as the tip of the needle is probably against the bone or imbedded in the periosteum. When the needle is in the proper position in the canal there is no obstruction whatever to the piston, the sensation being that of emptying the syringe into the air. Suction outward with a partially filled syringe should always be performed, and if any blood or spinal fluid is aspirated, the needle is withdrawn or the point shifted and the aspiration repeated until negative.

The solution is injected very slowly. Too much emphasis cannot be laid on this point, since if the solution is injected quickly, there is always a reaction and sometimes a very severe one. If one is combining a trans-sacral with a caudal block, it is best to inject half the amount and proceed with the injection of the foramina, and after a short period the remainder of the solution can be injected through the caudal needle, withdrawing the needle as the last syringe is emptied.

The strength and amount of the solution used varies a great deal among the leading surgeons. Farr uses from 90 to 120 c.c. of a half per cent solution of novocaine; Young, from 15 to 20 c.c. of a 3 per cent solution; Hirschman, from 30 to 60 c.c. of a 2 per cent solution; Labat, 20 to 40 c.c. of a 2 per cent; and Lundy about 35 c.c. of a 1 per cent solution. When combined with a trans-sacral block, smaller amounts can be used. I have produced good anæsthesia of the perineal region with only 10 c.c. of a 2 per cent solution of novocaine. The injection of large amounts of fluid into the sacral canal is now considered a questionable procedure. On some experiments on the

cadaver, I have traced the injection of 30 c.c. of an aqueous methylene blue solution through the sacral hiatus well up into the dorsal region. Reactions are more common with the stronger solutions, and with a weaker solution a much larger amount has to be injected, which is not without danger. For these reasons I use smaller amounts; for an average case, 20 c.c. of a 2 per cent novocaine solution in normal saline, with ten minims of adrenalin per 100 c.c., injected very slowly at body temperature.

Anæsthesia should be present in from ten to twenty minutes; showing first in the ano-coccygeal region, and later in the urethra and bladder. If much delay is shown, the technique should be investigated. The following points, if present, would convince one that the needle was in the sacral canal: (1) The tip of the needle gives free movement laterally, but much less antero-posteriorly. (2) The absence of resistance to the injection of the fluid. (3) Deepening of respiration and slight pallor a few moments after the injection. (4) Aspiration of spinal fluid. (5) Development of anæsthesia in the ano-coccygeal region. If a swelling appears over the dorsum of the sacrum from the injection of the fluid, it is undeniable evidence that the needle is not in the sacral canal.

Some reaction from a caudal injection is almost always present. This may be quite mild and transitory, and noticed perhaps as a pallor and deepening of the respirations. Others may complain of a giddy, faint feeling, with palpitation, or a weak numb feeling passing upward over the body, and sometimes nausea. Severe reactions shown by marked pallor, weak respirations. and a fast, soft pulse are generally associated with a too hurried injection, or an injection into a vein. Injections of caffeine sodium benzoate, camphor, or strychnine, improve the pulse and general condition, and after waiting a while the injection can usually be completed. It is interesting to note that the reported deaths were all from high sacral anæsthesia, the injection of large amounts of novocaine causing respiratory and cardiac paralysis.

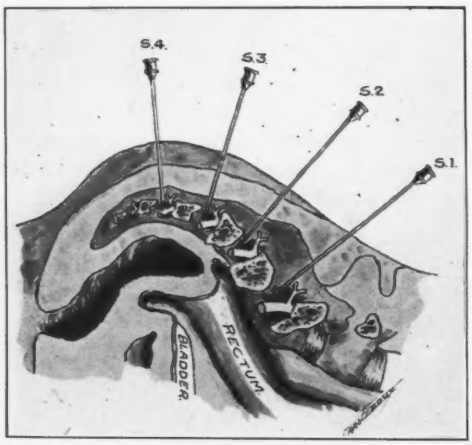
The chief disadvantages of caudal block are that the anæsthesia is not fully developed for about twenty minutes, and that occasionally failures are encountered, and in extensive operations on the rectum and bladder it is not found sufficient. For these reasons, a trans-sacral block is combined with it. In this combined form the percentage of failures is small. In 1,817 cases at the Mayo Clinic this was 5.33, and in most of these the failure was due to carrying the operation beyond the field supplied by the sacral nerves. (Meeker and Scholl). Hunt also reports satisfactory results in prostatectomies.

TRANS-SACRAL TECHNIQUE

In trans-sacral block, the chief landmarks are the posterior superior iliac spines and the sacral cornua. The former are marked by dimples in the skin, and in thin subjects are very easy to locate; in the obese, the best plan is to follow the iliac crests backwards and downwards until the prominences are felt. The second sacral foramen lies about 2 cm. internal and 1 cm. below the posterior superior iliac spine; the first is about 2.5 cm. above; and the third 2 cm. below the second. The fourth foramen is 1.5 cm. above and external to the sacral cornua, and 2 cm. below the third. A line joining the sacral foramina is not quite vertical, deviating slightly outward as it passes upward; the first foramen being 2.5 cm. from the midline and

Posterior aspect of sacral region and the average distances between the foramina and the relationship of the posterior superior iliac spines and sacral cornus to the foramina.

the fourth 2 cm. A steel centimetre rule is very useful for locating and marking these foramina. After making the wheal for the caudal needle, a good plan is to push the needle through this point upward and outward, and infiltrate over the fourth foramen, thus reducing the number of skin punctures. Separate wheals are now made over the second foramen and then over the third and first. The fifth foramen lies external and below the sacral cornu. For the first foramen a 10 cm. needle is required; for the second, an 8 cm. needle; and for the remainder, a 5 cm. needle. In passing the needle into the first and second foramina care should be taken that the needle is pointing slightly



Needles in the sacral foramina, and showing how the upper two needles should point slightly downward.

downward, as this facilitates its entrance into the canal; for the third and fourth the needle is perpendicular to the skin surface. If one experiences difficulty in locating a foramen after a few probes, the best plan is to proceed to the next, and after locating one, the others are not so elusive. If possible it is best to deposit the solution just past the centre of the bony canal. The length of the first canal is 2.5 cm., the second, 2 cm.; the third 1.5 cm.; and the fourth 0.7 cm.; so that one would aim at inserting the needle 2 cm. into the first foramen; 1.5 cm. into the second; 1 cm. into the third; and 0.5 cm. into the fourth. For this purpose I use needles specially made and graduated in centimetres. One can usually tell when the tip of the needle has passed into the foramen, but if the needle passes directly into a foramen without touching bone, it should be withdrawn and the bony edge felt so that the depth of the needle can be estimated. In strong subjects the usual amounts are 7, 6, 5, 4, 3, c.c. of a 1 per cent novocain solution, in the 1st, 2nd, 3rd, 4th, and 5th foramina respectively, and in less robust subjects 1 or 2 c.c. less in each foramen. One should always aspirate before injecting, to see that the point of the needle has not entered a vein, as this occurrence is not infrequent in the upper foramina.

Pre-operative narcosis is usually indicated, and especially so with apprehensive patients. In strong subjects we usually use a full dose of "twilight sleep": morphine gr. ¼, scopolamine gr. 1/100, one hour before the operation, and morphine gr. ⅛ and scopolamine gr. 1/200, fifteen minutes before. These patients usually doze through most of the operation, and after returning to the ward pass into a peaceful sleep for the remainder of the day. In less robust subjects a smaller dose is indicated. It is contra-indicated if there is cardiac distress, bronchial asthma, or renal insufficiency. In cystoscopic examinations, unless there is marked bladder irritability, preliminary narcosis is not necessary.

SURGICAL APPLICATION

Cystoscopy, and operations through the cystoscope, is a field in which sacral anæsthesia is extremely useful. For the ordinary examination caudal block is sufficient, but in contracted and irritable bladders, injection of the second and third foramen, from which segments the nervi erigentes chiefly arise, may be necessary. In caudal block one has to wait a full twenty minutes, as the urethra and bladder are the last regions to become anæsthetized. Under this anæsthesia contracted bladders can be dilated, the trigone is insensitive, and the passage of the ureteral catheters is painless. There is usually a twinge of pain as the cystoscope passes through the prostatic urethra, but this is only transitory. I now use it in all cystoscopic work. The patient is usually quiet and comfortable, a marked contrast to the groaning and writhing seen under the older method of urethral instillation. Fulgurations, litholapaxies, and dilatations of strictures, are also performed very satisfactorily under this form of anæsthesia.

In rectal operations, sacral anæsthesia is the

method of choice, and one only has to use it once to become fully converted to it. Caudal block, with injection of the lower two or three foramina, works admirably in hæmorrhoids, fissures about the anus, dilatations of strictures, excision of polypi, excision for pathological section, proctoscopy, etc. The sphincter is dilated, there is complete anæsthesia, and hæmorrhoids, if present, protrude, which makes the operation much easier. In resection of carcinoma of the lower rectum all the foramina must be injected, in addition to the caudal block. Fatalities are much lower under this method than with general anæsthesia.

Prostatectomies, both supra-pubic and perineal, are done by sacral anæsthesia with excellent results. With the supra-pubic route an abdominal field block is necessary. The lowest mortalities reported are under sacral anæsthesia, being less than half of those done under spinal or ether anæsthesia. During the few moments necessary for the enucleation of the prostate, a few whiffs of ether may be necessary, but this is also true of spinal anæsthesia. Secondary hæmorrhages are not so common under sacral as with spinal anæsthesia. The advanced age and debility of the average prostate case, coupled with the fact that there is often some bronchial affection or cardiac weakness and reduced renal function, make it imperative to avoid the dangers of a general anæsthesia, as this throws an added strain on these systems and greatly increases the shock. Nourishment and fluids can be given almost immediately after the operation, when done under sacral anæsthesia. Bladder resections and ureteral implantations, except where the peritoneum is involved, can also be done under sacral anæsthesia.

Cathelin, the pioneer of sacral anæsthesia, performed over a thousand injections chiefly as a therapeutic measure, in sciatica, incontinence, enuresis, and the crises of tabes. The cases of sciatica which persist, after causes such as foci of infection, tumours, diabetes, etc., have been eliminated, are sometimes benefited by sacral anæsthesia, about one half being cured. From 2 to 4 caudal injections are usually sufficient. Cases of pruritus ani have been cured by this method when all other measures have failed.

SUMMARY

1. Sacral anæsthesia is more difficult to perform than spinal anæsthesia, but is much safer.

2. The operator must have a concise knowledge of the surface anatomy of the sacral region, and bear in mind the frequent variations of the sacrum. The posterior superior iliac spines and the sacral cornua are the chief landmarks.

3. Mild reactions are common, but severe reactions can be avoided by injecting the solution slowly, and making sure that the point of the needle is not in a vein or in the subarachnoid space.

4. For the ordinary cystoscopic examination and urethral instrumentation, caudal block is usually sufficient, but where the bladder is very inflamed and contracted, additional injection of the second and third sacral foramina is done.

5. For hæmorrhoidectomies, and other operations about the anus, caudal block, with additional injection of the lower foramina, gives an excellent anæsthesia.

6. For the more extensive operations, such as resections of the rectum and prostatectomies, caudal block with injection of all the sacral foramina is required.

7. In strong subjects a full dose of "twilight sleep" precedes the operation, but in the less robust only a partial dose is given, and usually none in cystoscopic examinations.

8. Where a technique such as the above is followed, no ill-effects have been noted.

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THE HOME TREATMENT OF FRACTURES OF THE BONES OF THE LEG

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FOR purposes of description, particularly in relation to treatment, the fractures of the bones of the leg will be divided into three groups:

1. Fractures about the ankle joint (one or both malleoli).

2. Fractures of both bones of the leg above the ankle joint (comminuted and displaced).

3. Fractures of the fibula or tibia without displacement.

The number of cases treated in group 1 was twenty-eight; in group 2, nine; and in group 3, twelve. There were no external wounds.

Group 1 presented the largest number of cases. Five were treated during the same period. The fractures ranged from a simple solution of continuity of the tip of a malleolus to fracture of both bones with displacement and overlapping. The treatment consisted of: (a) reduction of the fracture, if necessary; (b) the usual plaster cast; (c) the removal of the cast on the tenth day; (d) daily half-hour treatments with diathermy for one week and alternate days, until the patient was fit to return to his usual work. During the first week of diathermy treatment, the patient's ankle was either strapped or bandaged. During the fourth week, the patient invariably returned to his usual work with no complaints. The diagnoses of the above cases were confirmed by x-ray examinations. During the follow-up work they were re-x-rayed several months after the injury.

In view of the fact that the majority of these cases were injured workmen (labourers and drivers), and come under the Workmen's Compensation Act of this province, the writer is of the opinion that the slightest discomfort would cause them to register a complaint. In addition, these men carried accident and sickness insurance with their respective companies. It is not likely that they would try to minimize their disability. Out of 28 cases 26 received less than four weeks treatment and returned to their work with no disability. One patient refused treatment for fifteen days; his disability lasted nine weeks. Another patient refused diathermy treatment; her disability lasted ten weeks.

FIG. 1.—Fracture of the internal malleolus of the right leg. No displacement. Total disability lasted twenty-five days. X-ray taken three months after patient returned to work.

Group 2 comprises multiple fractures of both bones of the leg. The diagnosis of fracture required no confirmation. They were usually radiographed only after they were immobilized in a plaster splint. With the exception of one case they were immobilized under general anæsthesia. The technique consisted of preparing the leg for extension, the leg was well padded, and a plaster-of-Paris splint applied. Traction was obtained by means of a double pulley; the latter rests on a metal base, which can be placed to rest firmly in any kind of bed. Thus, with the correction of the deformity under general anæsthesia and traction, overlapping and displacement were reduced to a minimum. Two or three days later the weights were removed and the plaster was reinforced. The splint was applied

in the usual way, immobilizing both the lower and upper joints. At the end of the second week, the upper joint was freed. The patient was allowed up with a crutch or cane. During the third week the patient was permitted to use his leg at intervals, cautiously, for a period of fifteen minutes at a time. At the end of the fourth week the cast was removed. During the fifth week he received daily half-hour treatments of baking and massage. In addition, the patient received glycero-phosphates by the mouth, during the period of his disability. In the sixth or seventh week the patient returned to his usual work.

FIG. 2.—Fracture of both bones of the left leg; antero-posterior view. No disability after five weeks. The patient was a boy fourteen years of age; he played tennis during the seventh week.

The treatment of fractures belonging to group 3 consisted of: (a) a plaster splint for ten days; (b) baking and massage for seven days, and the patient was up and about at the end of the third week. The majority of cases belonging to this group were children or young adults. As an additional precaution, their legs were bandaged during the third week. They also received a cup of milk three times daily during their disability. Glycerophosphates were also administered as in group 2.

SHORT CASE HISTORIES

By a coincidence five fractured ankles received treatment during the same period. The injuries occurred on September 3, 4, and 5, 1927.

D. G., aged 55, with fracture of both malleoli of the left leg. He returned to his work twenty-five days after the injury. When seen three months later he informed the writer that his ankle was normal and that at no time since his return to his work did he experience any pain.

G. G., aged 52, with fracture of the external malleolus of the left leg. Twenty-four days after the injury the patient returned to his usual work, with no disability.

W. L., aged 39, with fracture of the left fibula one inch above the malleolus;

A. V., aged 23, with fracture of the external malleolus of the left leg;

A. L., aged 55, with fracture of the internal malleolus of the left leg;

The last three men returned to their usual work (as truck drivers) twenty-three days after the injury, with apparently normal ankles. They have since carried on with their work and have not complained to their company physicians.

L. K., aged 14, with fracture of both bones of the left leg, above the ankle joint. When first seen the fragments were almost at right angles. May 26, 1926, the fracture was reduced under general anæsthesia, and a plaster cast applied. Traction for two days. He was allowed up on the seventh day. June 11th, the upper part of the cast was removed. June 21st; the whole cast was removed. During the month of July the patient was allowed to play tennis.

D. A. B., aged 38, with a fracture of both bones of the right leg on February 3, 1926; comminuted, and the only compound case in the series. February 4th; the patient had a chill, and the temperature at 10 a.m. was 102.3°. Without anæsthesia a plaster cast with traction was applied. The weights were removed on February 7th, and the plaster reenforced. On February 25th; the upper portion of the cast was removed. On March 8th; the cast was completely removed. Glycerophosphates were given during the disability. Baking and massage were employed for two weeks. On March 15th; the patient returned to work (as principal of a school). He later commented on the fact that he could not put on an aristocratic limp.

Miss M. H., aged 22. Almost a duplicate case of *D. A. B.* The injury occurred on December 22, 1926. The treatment was the same as above. She also received diathermy because in this case the fracture extended into the ankle joint. No disability on February 9, 1927. The reduction of the fracture in this case was done under general anæsthesia.

J. B., aged 15, with fracture of right tibia January 5, 1927. A plaster cast applied for ten days: baking and massage for ten days. January 28th; the patient attended school without any disability.

DISCUSSION

An attempt has been made to illustrate, by means of a few short case histories, supplemented by radiographs, that more attention should be given to the concurrent soft tissue injuries which exist in all fractures. The attention of the surgeon is usually concentrated on the fragments of bone, and on an open wound if present. Wounds and injuries covered with unbroken

skin are usually neglected. Since the circulation, due to the fracture, contusion, and tears of the soft tissues, and swelling, is usually impaired, one may be of the opinion that prolonged splinting of the affected part and its joints is not only non-beneficial but actually harmful for the rapid restoration of the function of the limb. It is a well-known fact that wounds of the scalp and face heal very rapidly; it is also known that the rich circulation is responsible for the rapid healing. Rapid healing may be obtained in other parts of the body by improving the circulation. Fractures are no exceptions, and their repair is undoubtedly hastened by heat.

FIG. 3.—Multiple fractures of both bones of the right leg; lateral view. Reduction attempted by simple traction. Alignment poor. Patient returned to his usual work in less than six weeks after the injury.

A group of English biochemists have shown, experimentally, that glycerides hasten the deposition of calcium in bone repair. The author administered glycerophosphates as a routine treatment in all fracture cases.

The writer is of the opinion that improved circulation, increased heat (to what may be termed a more favourable temperature), hastening the absorption of extravasated blood by means of heat and massage, thus preventing adhesions, refraining from prolonged splinting (early use of the muscles and joints), and internal medication (recalcification in the presence of a glycerol radicle), constitute available agents for the reduction of the period of disability of persons suffering from fractures. Excellent results have also been obtained in fractures of the foot, wrist, thigh, pelvis, arm and forearm.

SUMMARY

1. The early restoration of the complete function of the limb, is an important factor in the treatment of fractures of the leg.

2. One can reduce the period of disability of disabled fracture cases by: (a) improving the circulation of the affected part and thus hastening soft tissue repair, (b) reducing the period of immobilization of the limb and its joints and (c) internal medication.

3. The effective agents employed to improve

FIG. 4.—Fracture of the left fibula and spiral fracture of the left tibia. Lateral view. Total disability lasted seven weeks. This photograph was taken six months after the injury.

the circulation are diathermy, baking and massage (as early as possible).

4. Extension or hyperextension are important factors in procuring alignment of fragments (without open operation).

5. It is not essential that the alignment should be anatomically perfect.

6. In the presence of glycerophosphates the deposition of calcium is more rapid and apparently more favourable for early bone union,

7. The principles outlined for the treatment of fractures of the leg also apply to fractures of other bones of the human frame.

THE FATE OF FOREIGN BODIES SWALLOWED BY CHILDREN*

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THE purpose of this paper is to give a comprehensive idea of what happened to the eighty-four cases which were admitted to the Hospital for Sick Children Toronto, during the period, October 1, 1922, to September 31, 1926, with the history of having swallowed a foreign body.

The foreign bodies had been present from as short a time as half an hour to as long a time as seven weeks. In eight cases the foreign body had been present more than seven days. Many children of less than one year were among the patients. The youngest was six months old; the oldest was twelve and a half years of age. The majority were between two and six years of age. Ten were under the charge of the Surgical Service; of these one died. Seventy-four were treated by the laryngological service; four died. The remainder made a complete recovery.

The foreign bodies consisted of a great variety of substances, which may be classified as metal objects, mineral objects, animal substances, and vegetable substances.

The metals formed the largest group, coins alone numbering thirty-six; pins of various sorts fourteen; but there were other extraordinary metallic bodies, such as the hammer of an alarm clock, nails, buttons, tin whistles, a metal dog, and a jagged piece of lead. The largest object removed was a fifty-cent piece. In one case x-rays showed what was taken to be a coin in the usual situation in the œsophagus, but operation was successful in removing not one but two large Canadian one-cent pieces, tightly stuck together.

The most interesting mineral substance was a piece of jagged glass. This object was found just above the level of the diaphragm, already deeply embedded and commencing to cause hæmorrhage. The child recovered rapidly.

Buttons and bones formed a very small proportion of the objects removed. The vegetable substances were a larger, but not very prominent, group.

The latter are, however, singularly important in our bronchoscopic work. On account of their lightness and small size they are easily inhaled, and hence pass into the respiratory tract. Of these, peanuts give rise to one of our most difficult problems.

Of the total number only ten or about 12 per cent fell to the lot of the surgical service. In all cases but one of these, the foreign body had already passed into the stomach when the patient arrived in the hospital. When foreign bodies reach the stomach it is obvious that they have an easier future route than they had in reaching the stomach, and therefore it is probable that the majority of such will pass on without causing trouble.

When a case is admitted in which the foreign body has already reached the stomach, it is our practice to have the case transferred to the surgical service. There the case is kept under observation and x-rayed from time to time.

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Seven of the cases did not require operation, because the foreign body passed on and gave no trouble. In three cases the surgical removal of the foreign body had to be undertaken. No foreign body was removed from the stomach by gastroscope.

Pins of various sorts are the most dangerous foreign bodies which can reach the gastro-intestinal tract. Two safety-pins reached the stomach, and required operation. One straight pin reached the stomach and passed on safely. It is obviously very much safer to catch the pin before it leaves the œsophagus.

Foreign bodies that are inhaled and pass into the respiratory tract, as well as those which lodge in the pharynx and œsophagus, are dealt with by the laryngological service.

Very few foreign bodies stick in the upper two-thirds of the pharynx. The removal of those which do is not always a simple matter. The physician must be emphatically cautioned against attempting removal by sticking the finger into the throat, as several of the foreign bodies were with difficulty removed from the larynx only because of such misdirected attempts. The procedure of removal requires to be carefully undertaken with the appropriate instrument and in the requisite manner.

Coins form the larger percentage of all our foreign bodies. All of these stuck in the œsophagus, and none entered the larynx. The reason for this is that thin, flat, heavy, foreign bodies, on account of their weight, are not deflected by the air current, and on account of their shape, slip readily into the lower pharynx. whose greatest diameter is from side to side.

The pharynx is a muscular structure whose musculature and corrugated mucous membrane end about one inch below the level of the arytenoid cartilages. At this point there is a distinct narrowing, due to the lower fibres of the inferior constrictor of the pharynx, and immediately below it the mucosa changes to the relatively very smooth mucosa of the much wider œsophagus. A foreign body, therefore, will be gripped at this point, and held there until it is removed, unless misdirected efforts shove it past the narrowing and hence allow it to drop to one of the two other narrow points of the œsophagus.

The great majority of the foreign bodies swallowed stick at the upper narrowing. Removal is accomplished fairly easily if the appropriate means are used. If the requisite skill is not exercised, a smooth foreign body may be dislodged and pass to the level of the diaphragm, whence removal is more difficult.

Not all foreign bodies are so easy and safe to remove as flat, relatively smooth, coins. One toy metal dog had six very sharp points, most of which were embedded in the mucosa. Such an object must be very carefully studied, rotated cautiously into a favourable position, and then withdrawn with meticulous care, so that the sharp points may do no damage to the tissues.

Safety pins are in a class by themselves. A few have been swallowed closed, and passed uneventfully. Those that are swallowed open form a very dangerous group. For purely mechanical reasons, such pins unavoidably slide down the œsophagus, ring-end first. Sooner or later, the muscular contractions of the œsophagus cause the point to become deeply embedded, and the pin becomes fixed *in situ*. It is obvious that to seize the pin by the first point seen, and to pull it out forcibly, would certainly cause an extraordinary amount of damage, which would probably be fatal. It is, therefore, necessary either to bring the pin out closed, or to rotate it and bring it out ring-end first. How we do these things will not be described in this paper, but we have had invariable success in the removal of these objects from the œsophagus without any complication. No real safety pin which was open was evacuated spontaneously; two reached the stomach and were watched until it was felt that either signs of peritonitis were developing, or that evacuation would not occur, and then gastrostomy was performed. In both cases, the operation was quite successful, but in one case, as recorded, death occurred from another cause. A nail-file that had been in the stomach of a child, aged two, for seven weeks, was successfully removed by gastrostomy.

Foreign bodies which get into the larynx and the respiratory tract are a very different problem. Five cases died. A baby of nine months and a baby of two months died of septicæmia; in the one case, septicæmia was proved to exist prior to operation; the other case was admitted practically *in extremis*. A third infant died from asphyxia from the foreign body

when it was being given a rest from the first attempt at removal. A fourth patient with an open safety pin embedded for days in the larynx died of pneumonia, which had already developed prior to operation. The other child died of post-operative acidosis.

The majority of these patients died in the first part of the period under report, three occurring in the first year. There has therefore been a marked improvement in the mortality rate.

Later in this paper are given indications of what should be thought of the moment a physician is confronted with a foreign body case. Bearing these considerations in mind, he will send the patient at once to a trained bronchoscopist, if the indications so require; but if it is one of the relatively safe type of cases, he will have the child kept under careful observation until the object has been evacuated.

One of the first questions which will occur to him is—*if it is suspected that a foreign body has been swallowed, how long should the child be watched?*

Seven of the cases on which this paper is based were very closely watched in hospital, x-rays being taken frequently. They were detained until the foreign body had been evacuated. The times of evacuation varied greatly. Three foreign bodies passed in two days; one, in three; one, in four; two, in seven days. A baby pin, which was virtually but not completely closed, passed through in two days; the crystal of a watch took four days; a nail and a whistle both took seven days. One plain straight pin, a coin, and a round metal whistle, reached the stomach and were passed safely by the rectum.

I have given the above facts, so that the physician may be guided rationally in his procedure when a case is brought to him, in which it is suspected that a foreign body has been swallowed. He must settle for himself the questions:—

1. Is there a foreign body present?
2. Where is it located?
3. What advice should he give?
4. What is the prognosis?

As it is possible that he may have received news of his patient before he is brought face to face with him, he may already know what the foreign body is.

If the body is relatively small, firm, and smooth, the probability is that it will pass on and do no harm whatever. If it is of the same type, but larger, it may stick and cause some discomfort, but its removal can be done surely and safely, and there is no particular urgency. If the body is of the same type, but sharp, or if it has cutting edges, it is almost certain that it will do a great deal of harm. Such a patient, therefore, should be transported as speedily as possible to a place where there are facilities for its safe removal. It can be presumed that all of the above will probably have fallen into the œsophageal tract.

If the foreign body is a small food particle, such as a bean, pea, or seed, it will give trouble only if it has gone into the respiratory tract. It is certain that it will in the course of the next few hours swell up, and, sooner or later, do great damage. Therefore, such a patient should be removed at once to the hands of the nearest bronchoscopist.

If the foreign body is a pin of any sort, the child should at once be sent to hospital, and the localization made by x-ray. This patient should be put in the hands of a surgeon or of a bronchoscopist, depending on where the pin has lodged.

Face to face with the patient, much can be done toward accurate diagnosis of the location by careful observation. If the child is hoarse, and has a croupy cough, or can hardly speak above a whisper, the foreign body is probably in the larynx. If the patient has a constant sensation of distress or annoyance, and still more if he is in great pain and is cyanosed, the foreign body is probably in the lower portion of the pharynx, lodged behind the cricoid. If the patient is in no distress, but says he can feel the swallowed object, and he points to some part of his neck or chest, it is almost certainly in the œsophagus. If there are no symptoms whatever, and the foreign body is of the kind which can reach the respiratory tract, it may be in the trachea, or in a bronchus, but such a case will sooner or later manifest either intermittent dyspnœa, or intermittent cyanosis, or both.

From what has been said above, the course of action to be taken can be readily deduced.

XUM

But I will fail in my duty if I neglect to tell you what Chevalier Jackson says ought not to be done.

1. Do not reach for the foreign body with the finger, lest the foreign body be thereby pushed into the larynx, or the larynx be thus traumatized.

2. Do not make any attempt at removal with the patient in any position other than the recumbent, with the head and shoulders lower than the body.

3. Do not hold up the patient by the heels, lest the foreign body be dislodged and asphyxiate the patient by becoming jammed in the glottis.

4. Do not fail to have a radiograph made, if possible, whether the foreign body in question is of a kind dense to the ray or not.

5. Do not fail to search endoscopically for a foreign body in all cases of doubt.

6. Do not pass an œsophageal bougie, probang, or other instrument blindly.

7. Do not tell the patient he has no foreign body, until after radiography, physical examination, indirect examination, and endoscopy have all proved negative.

A CASE OF SEVERE CHRONIC NEPHRITIS SHOWING REMISSION OF ALBUMINURIC RETINITIS*

BY W. DE M. SCRIVER, B.A., M.D.

From the University Clinic, Department of Medicine, McGill University and Royal Victoria Hospital, Montreal

THE patient, Mrs. P., a French Canadian housewife of 42 years of age, was admitted to the Royal Victoria Montreal Maternity Hospital on September 6, 1927, in the eighth month of pregnancy, complaining of headache, dizziness, and blood in the urine.

There was no history of any previous illness, other than pneumonia in 1917, which followed the usual course, with good recovery. Married in 1904, she has since had twenty-one pregnancies, including the present; fifteen full-term live children, four ending in abortion at intervals among the successful pregnancies; the last child, in August 1926, was born dead at the eighth month.

Her health was apparently good until late in 1925, when she first noticed occasional headaches, epistaxis, and some dyspnœa, with palpitation. At this time nocturnal frequency, three to four times per night, first appeared as a symptom. During the summer of 1926, while in the latter half of the twentieth pregnancy, œdema developed about the ankles. She was delivered of a dead-born child in the eighth month. The history is confused, but the patient thinks she had some twitching or spasm of the hands before delivery. Following delivery, and up to the commencement of the present attack, she felt well, but noticed her vision failing.

About the end of August, 1927, in the seventh month of the twenty-first pregnancy, the patient was seized with severe headaches and dizziness, and her urine became definitely bloody. As her condition did not improve with ordinary measures, her local obstetrician sent her into hospital.

On admission, her blood pressure was 258/108; there was moderate œdema of the feet; the urine was grossly bloody, with specific gravity of 1012; a large amount of albumen was present; no casts were noted. The following day she suffered a convulsion of moderate severity, followed by a period of mental confusion. Venesection was performed twice, with apparent improvement in her condition. The next morning spontaneous labour set in, and she was delivered of an eight-months' dead child.

Following delivery, the œdema did not disappear, and the breathing became gradually more rapid and laboured. Nine days after delivery she was seen in consultation by the medical service because of severe dyspnœa. The

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*Read before the Montreal Medico-Chirurgical Society, February 3, 1928.

breathing was rapid, deep and forceful, of a type suggesting acidosis. There was a marked pallor of the skin and mucous membranes, and a moderate degree of œdema about the ankles, lower back, and dependent portion of the thighs. The arteries were slightly thickened, but not tortuous; the pulse regular; blood-pressure, 165/70. The heart measured 12 cm. to the left of the mid-sternal line; the sounds were distant, with a systolic murmur at the apex; there were moist râles at both lung bases posteriorly. No abdominal masses or organs were palpated. The urine was acid, with a specific gravity of 1006; albumen heavy trace, no sugar; the sediment contained numerous red blood cells; no casts were noted.

The fundi showed severe albuminuric retinitis, later confirmed by the department of ophthalmology, who gave as their report: "Intense degree of albuminuric retinitis in each eye. In the right fundus the arteries are small or contracted, veins very large and engorged. The whole retina is splashed with innumerable plaques of lymph exudate of varying sizes; associated with these are small hæmorrhages. The left fundus shows the same picture except that the veins are not so engorged, and the hæmorrhages are considerably fewer; the plaques of lymph are equally numerous."

Blood chemistry at this time gave high values as shown on the chart.

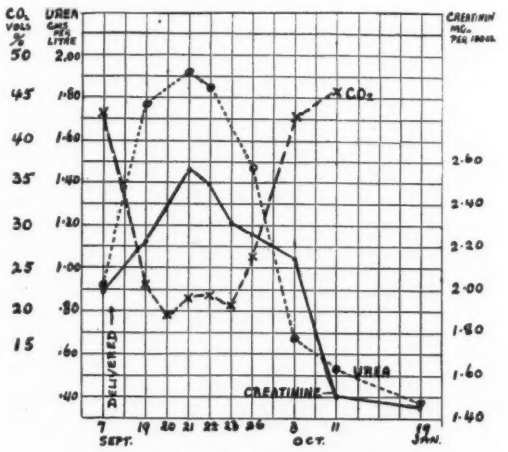

CHART 1.—Blood chemistry—Mrs. P.

Under treatment with glucose saline intravenously, and colonic lavage, with the oral administration of disodium hydrogen phosphate, 4 grm. every four hours for the acidosis, the condition improved clinically, and chemically, as shown by the chart. The diet was at first milk and toast, increased after a week to protein 20 grm., fat 50 grm., and carbohydrate 100 grm.; and in another week to protein 40 grm., fat 100 grm., and carbohydrate 200 grm. Progress was at first slow, but later became more rapid, with a subsidence of the severe symptoms and general improvement. Before discharge her urine still showed a large amount of albumen, with an occasional pus cell, but no erythrocytes or casts. The blood-pressure was 160/80 and the blood chemistry figures approached normal limits, though still being moderately high. The modified Mosenthal test showed a well-marked fixation of the specific gravity of individual specimens at a low level.

Following her discharge she returned home, where she did very little work herself, but led a life of relative ease. She had been instructed to follow a diet similar to that given her in hospital, but actually exceeded her instructions, excluding all meats and taking only one egg daily. As at her daily meals she supplemented this with a large dishful of pea soup, made with a basis of meat stock, it is evident that her nitrogenous intake was anything but low.

Her progress was quite satisfactory until the end of December, 1927, when she developed severe serpiginous ulceration of both corneæ, and was again admitted to hospital under the department of ophthalmology. While she was under treatment for this condition, further observations of renal function were made.

CHART II.

RENAL FUNCTION TESTS—MRS. P.

Modified Mosenthal Tests

	September 23rd, 1927		*January 18th, 1928*	
Time	*Volume c.c.*	*Specific Gravity*	*Volume c.c.*	*Specific Gravity*
(*Day*)				
10	440	1010	40	1015
12	220	1007	60	1010
2	200	1008	125	1008
4	175	1009	150	1005
6	255	1008	150	1008
8	220	1006	225	1005
(*Night*)				
8–8	320	1009	500	1007

McLean's Test—January 21st, 1928
Concentration—1.49% (Normal, 2% or higher)
Factor 20.1 (Normal about 40)

The patient claimed to be in good general health, and had no marked symptoms apart from those referable to the local condition. The urine still contained a large amount of albumen, and, microscopically, occasional granular casts and red blood cells were visible. The Mosenthal test showed a relatively low fixed specific gravity, as on the former admission. With MacLean's urea concentration test, after 15 grm. of urea by mouth the concentration in the urine was 1.49 per cent and the factor 20, showing a moderate but definite impairment of renal function. The blood chemical values fell within normal limits, but the blood-pressure continued high, 172/96. The albuminuric retinitis had cleared, leaving the picture described below, the right fundus only being visible.

"The arteries are narrow; veins of about normal size. Venous compression where arteries cross veins. No hæmorrhages to be seen; but there are a few tiny white spots in the retina, chiefly on the nasal side. The macula is clear.

"There is no indication of an albuminuric retinitis. Changes seen are those of arteriosclerosis of retinal vessels.

"Patient suffering from corneal ulceration."

The history and physical findings, together with the various tests of renal function, show that this is a case of moderately severe chronic nephritis. While the total disappearance of albuminuric retinitis has been observed in acute nephritis, yet we usually think of such a condition of the fundus in chronic nephritis as permanent and of very grave prognostic import.

In this case it would appear that the retinitis was merely one of the several acute changes brought on by the strain of pregnancy, and relieved by the termination of this condition. The prognosis, however, should still be considered bad, with an especially poor outlook in the case of further pregnancy or acute infection.

We reproduce the following verses from the *British Medical Journal* (Feb. 18, 1928), who in turn quoted them from the January issue of the *St. Bartholomew's Hospital Journal*. We also believe that they will prove of interest and amusement to many who like to have some aid in remembering the properties of the several vitamins.

The A B C of Vitamins

A.

Oh fine and fat was Ralph the rat,
And his eye was clear cold grey.
How mournful that he ate less fat
As day succeeded day,
Till he found each cornea daily hornier,
Lacking its Vitamin A.
"I missed my Vitamin A, my dears,"
That rat was heard to say,
"And you'll find your eyes will keratinize
If you miss your Vitamin A."

B.

Now polished rice is extremely nice
At a high suburban tea,
But Arbuthnot Lane remarks with pain
That it lacks all Vitamin B,
And beri-beri is very very
Hard on the nerves, says he.
"Oh take your Vitamin B, my dears!"
I heard that surgeon say;
"If I hadn't been fed on standard bread,
I shouldn't be here to-day."

C.

The scurvy flew through the schooner's crew
As they sailed on an Arctic sea.
They were far from land and their food was canned,
So they got no Vitamin C.
For "Devil's the use of orange juice,"
The skipper 'ad said, said he.
They were victualled with pickled pork, my dears,
Those mariners bold and free.
Yet life's but brief on the best corned beef
If you don't get Vitamin C.

D.

The epiphyses of Jemima's knees
Were a truly appalling sight;
For the rickets strikes whom it jolly well likes
If the Vitamin D's not right,
Though its plots we foil with our cod-liver oil
Or our ultra-violet light.
So swallow your cod-liver oil, my dears,
And bonny big babes you'll be.
Though it makes you sick it's a cure for the rickets
And teeming with Vitamin D.

E.

Now Vitamins D and A, B and C.
Will ensure that you're happy and strong;
But that's no use; you must reproduce
Or the race won't last for long.
So Vitamin E is the stuff for me,
And its praises end my song.
We'll double the birth-rate yet, my dears,
If we all eat Vitamin E.
We can blast the hopes of Maria Stopes
By taking it with our tea.

C.H.A.

Case Reports

A CASE OF ANGINA PECTORIS WITH TERMINAL URÆMIA

BY D. GRANT CAMPBELL, M.D.

Attending Physician, Montreal General Hospital, Montreal

This patient, Mrs. S., was admitted to hospital, December 15th, 1927, because of precordial pain. She was 75 years of age and had not been seriously ill since childhood, but had consulted me occasionally during the past five years because of digestive disturbances, and had had a barium series done, with normal findings, two years ago. On March 10th, 1927, at 4 a.m., she had a peculiar seizure with semi-consciousness lasting for thirty minutes, stertorous breathing, loss of sphincter-control, and dyspnœa. There was no irregularity of the pulse and the blood-pressure was not elevated. Precordial pain was present later, as she became normal, but was not a marked feature.

After three or four days in bed, she appeared to be normal again, and was soon up and about under restrictions. Between that date and December 11th she had two similar, but less severe, attacks, with no loss of consciousness and without marked precordial pain.

On December 11th, at 10.30 a.m., she dropped while walking to the bathroom and found herself on the floor. She dragged herself back to her bedroom before help arrived, and immediately complained of severe precordial pain and had marked dyspnœa. She was seen within a few minutes by a doctor, who called me at the hospital, reporting that the attack looked like an anginal one. When seen a little later, the dyspnœa was more marked than on previous occasions, and the precordial pain was the outstanding feature, not being relieved by 1/3 grain of morphine hypodermically.

For the next three days the precordial pain remained the outstanding feature; there was no fever, and no pericardial friction was detected.

On December 15th, she was admitted to hospital, and an electrocardiographic tracing was taken the next morning. To our surprise it was reported to be normal. Examination in the hospital showed similar findings to those recorded outside; a regular pulse of 76-84, with considerable sclerosis of the vessel walls; a slightly enlarged heart (3 cm./11 cm. at the level of the third rib); normal heart sounds; no friction-rub; and a blood-pressure of 124/80. The first few days in hospital were uneventful, except for a slight daily febrile rise to about 100°, but on December 20th (five days after admission) she became more dyspnœic and cyanosed, and the lungs filled with fine moist râles. On the evening of December 21st she developed an attack of acute dyspnœa, with all the appearances of uræmia, and a venesection was done at 10 a.m. Her blood-chemistry next morning showed a urea-nitrogen figure of 38, and a creatinine of 2.00. This had changed by December 27th to a urea-nitrogen figure of 79 and a creatinine of 2.14, and by December 31st to a urea-nitrogen figure of 98 and a creatinine of 1.82. Her leucocyte count was 13.400, and the urine never showed more than a trace of albumen. She died on January 2nd.

The striking features, clinically, were the remarkably good quality and evenness of the pulse up till within thirty-six hours of her death, it was usually about 80, the intense dyspnœa; and the constant precordial pain. At no time was a pericardial friction obtained, but, in spite of this and the normal electrocardiagraph tracing, we felt that the condition was one of coronary disease with a terminal uræmia.

Unfortunately we did not have a second electrocardiagram taken. This would likely have shown changes and we recognize now that this should have been done.

CORONARY THROMBOSIS

BY C. C. BIRCHARD, M.B., M.R.C.P. (LOND.)

The case to be reported is one of coronary thrombosis observed in the service of and through the kindness of Professor Campbell P. Howard at the Montreal General Hospital last autumn. It seems to be worthy of report, not so much for its rarity, for actually the condition is quite common, but mainly because it is only during the last few years that internists have acquired facility in its clinical diagnosis and an appreciation of the frequency with which it occurs. Formerly it was labelled in a large

XUM

proportion of cases "acute indigestion," "perforated peptic ulcer," or "acute pancreatitis," and not infrequently abdomens were opened to deal with upper abdominal lesions which did not exist; similar errors are of common occurrence.

The patient (J. H., 5516/27) was a male, aged 60 years, a labourer by occupation, who had always performed the heaviest manual labour, who drank unusually freely of alcohol, and smoked heavily. He was a widower, the wife being dead of "dropsy." They had no children and there had been no abortions. His only noteworthy prior illness, aside from alcoholism, was a chronic cough of many years standing and a hæmoptysis a quarter of a century ago. He denied venereal disease.

The present illness may be said to have begun four years ago with noticeable but not very troublesome palpitation and dyspnœa after exertion, "dizzy spells" being often associated. During the past two years after meals or exertion, there were frequent attacks of epigastric and lower sub-sternal pain radiating upwards to the upper sternum with, at times, numbness in the arms, more often the left, and always associated with distension of the upper abdomen and gaseous eructations. In spite of these he was able to carry on at heavy manual labour.

Early last autumn, though employed at a job much less arduous than was his wont, that of tending furnaces, he noticed that his attacks of sub-sternal pain were more frequent, of longer duration, and more annoying, but not incapacitating. On October 15th after a full evening meal, he suddenly became extremely breathless; there was excruciating pain in the epigastrium, and he spat up some frothy sputum. He attempted to walk a short distance to get home, but collapsed in the street and was brought to the Montreal General Hospital by ambulance.

On admission, breathlessness was extreme; he was raising copious quantities of frothy blood-tinged serous sputum. The facies was ashen grey; a combination of pallor and cyanosis; the skin was moist and cold, and the fingers, lips, and ears were blue. The heart was markedly enlarged to the left; the pulse was small, very irregular, and very rapid. The peripheral vessels were thick and tortuous. The heart sounds, though audible at first, became so muffled and distant that they could be heard only with the greatest difficulty. The blood pressure, at first 194 mm. systolic and 130 diastolic, rapidly fell to 120 systolic and 68 diastolic. The lungs showed impaired resonance at the bases with much moisture, and there were rhonchi over the large tubes. There was no appreciable enlargement of the liver nor œdema of the extremities.

During the following three days the dyspnœa gradually subsided and the sub-sternal pain became less severe. There was irregular pyrexia ranging from 99 to 102. Several leucocyte counts were between 10,000 and 11,000. The blood Wassermann was negative. The mechanism of the greatly irregular pulse was shown by the electrocardiograph to be auricular fibrillation; associated findings were conspicuous inversion of T-2 and T-3 and a left ventricular preponderance. On the third day there was a return of the severe epigastric pain, radiating upwards, accompanied by an extreme breathlessness, which subsided in a few hours. On the fifth and sixth days there was a pronounced pericardial friction rub over the apex. By this time the heart sounds had again become readily audible.

During his hospital sojourn a great variety of abnormalities in rhythm was exhibited, the electrocardiographic records showing:—

Second Day.—Auricular fibrillation with inversion of T-2 and T-3, and left ventricular preponderance, as mentioned above.

Third day.—Complete heart-block, and auricular fibrillation; the stimuli to contract arising in the left ventricle. At this time the ventricular rate was between fifty and sixty per minute.

Fourth Day.—Complete heart-block but with now normally functioning auricles, auricular fibrillation having disappeared and the T's from being conspicuously inverted, having become conspicuously upright.

Sixth Day.—Complete heart-block, and again auricular fibrillation.

Eighth Day.—Partial heart-block (probably, the pulse rate having risen to 66 per minute and become irregular) and auricular fibrillation.

Tenth Day.—Complete heart-block (pulse regular at forty-eight per minute) and auricular fibrillation.

Twenty-Seventh Day.—Complete heart-block; ventricular extra systoles arising in, at least, two separate foci, alternating with the systoles originating in the junctional tissues and producing the phenomenon of "coupling" (probably due to digitalization), and auricular fibrillation.

Thirty-third Day.—Ventricular extra systoles (occasional), and auricular fibrillation. Heart-block is no longer in evidence; the ventricular rate is now 72 per minute and very irregular.

During the remainder of his stay in the hospital auricular fibrillation persisted. Ventricular extra systoles were frequent, the T's went through various changes in shape, size and direction, and the QRS deflections became much decreased in amplitude. These last two results are very characteristic sequences of cardiac infarction.

The subsequent history was that the patient left our hospital on the forty-second day after the onset against the advice of the chief of the service. Six weeks later he had an attack similar to that described, was taken to another hospital, and died shortly after admission. Autopsy revealed an old infarct at the apex of the heart and a large recent thrombus high in the left coronary artery.

DISCUSSION

This case illustrates well the salient features of coronary thrombosis which bear on diagnosis: There is commonly a prior cardiac history, but not invariably so; not infrequently the attack strikes without warning and in those in whom one least suspects coronary disease. Pain, of very sudden onset and usually epigastric is severe, persistent and terrifying, and in typical cases does not radiate to the arms. The shock is of extreme grade. Vomiting is a frequent symptom, but in our case was absent. These are the features which entice the unwary to diagnose "acute indigestion", or a catastrophe in the upper abdomen. Heed should be paid to the extreme dyspnœa, lasting for hours or even days, to the muffled distant heart sounds, to the pronounced fall in the blood-pressure, the disturbances of rhythm, and to the œdema of the bases of the lung, (which, however, is seldom sufficient to cause the expectoration of serous blood tinged

sputum as occurred in the present case), and attention will be invariably directed to the heart. The signs and symptoms of the days following the attack are those to be expected from infarction. The temperature runs usually from 99° to 102° F.; there is low grade leucocytosis, and finally in a large proportion of cases a pericardial friction may be heard over the apex, and this if heard makes the diagnosis certain. The syndrome is about as definite as anything in clinical medicine. Indeed, its definiteness leaves one astonished that the first article in medical literature dealing with this condition as a clinical entity should have appeared so recently as 1910.

Since recognition of coronary thrombosis has become easy, the rather astonishing frequency with which it occurs has been recognized. Many of the fatalities reported in the daily press as due to "acute indigestion" appear to be due to it, which, considering the prominence of the gastric symptoms, is not to be wondered at. All grades of severity may be encountered, depending on the size of vessel occluded, from a severe case as described above to those which do not cause outstanding symptoms and are with some difficulty differentiated from the more severe types of ordinary angina pectoris. In addition, we have learned that the proportion of patients who survive is large, and that it may occur even in youth, though commonly not before the fifth decade. In the past eighteen months in the Montreal General Hospital an attack occurred in a boy aged seventeen and another in a medical student aged twenty-six, both recovering. In four out of five cases the site of the lesion is in the descending branch of the left coronary as it lies on the anterior aspect of the ventricles in the interventricuar groove. As a consequence of this artery being most frequently involved the common site of the resulting infarct is in the apex and anterior aspect of the ventricles, and the friction rub is heard over the apex. Furthermore, since this artery supplies both branches of the bundle of His, irregularities of rhythm occur very frequently. The thrombosis is generally due to atheromatosis of the artery wall, though it is difficult to understand how such a condition could have been present in the coronaries of two youths aged seventeen and twenty-six years exhibiting no disease elsewhere. In them the occlusion was probably embolic.

THREE CASES OF ORBITAL ABSCESS SECONDARY TO SUPPURATIVE SINUSITIS*

BY WILLIAM B. STARK, M.B.

Section on Otolaryngology and Rhinology, Mayo Clinic

Rochester, Minn.

Orbital complications of accessory sinus disease are relatively infrequent, but may have a definite effect on vision. Such complications are probably more often secondary to disease of the frontal and ethmoid sinuses than to disease of other paranasal sinuses. Extension of infection from the frontal sinus to the orbit is usually by way of the communicating veins. Rupture of the roof of the orbit following pressure on the dividing bony wall leads to the formation of an abscess of the orbit and, possibly, of the lid. This lid-abscess may rupture and a fistula result. The orbital complications of a frontal sinusitis may cause definite symptoms and signs, or symptoms may be lacking.

Trauma, tuberculosis, and syphilis may lead to the formation of a fistula in this area, so that the rhinologic origin of the trouble cannot be conclusively established without rhinologic and roentgenologic examination. Closure of the nasofrontal duct may have much to do with causing orbital complications, although it is not, of course, the only factor. The orbital complications resulting from infection of the frontal sinus usually are manifested externally at the upper inner orbital angle.

I have recently observed three cases of abscess of the orbit secondary to chronic suppurative frontal sinusitis. The same type of localized orbital suppurative lesion was present in all of the cases. In one of them, there was definite disturbance of vision. In the other two there was no visual disturbance for which the sinusitis might be held responsible.

CASE 1

A man, aged twenty-four years, was seen in the Section on Otolaryngology and Rhinology of the Mayo

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* Abridgment of paper read before the Canadian Medical Association, Toronto, Ontario, June 16, 1927.

Clinic, early in 1927. Seven years previously, he had experienced an acute upper respiratory tract infection, with pain and swelling over the right eye. Four days after the onset of the pain, an external operation was performed on the frontal sinus. There was complete relief from symptoms, and freedom from abnormal nasal discharge for three years. Then the patient contracted another acute cold, and the right upper eyelid swelled. Another external operation was performed. Then followed a series of four external operations, each one giving relief for from three to twelve months. During the year previous to examination at the clinic, a fistula in the right upper eyelid had discharged pus at intervals. There was pus in the region of the right nasofrontal duct; a medium sized probe could be introduced through this duct into the frontal sinus. There were no symptoms of visual disturbance.

The eyes were found to be normal. Roentgenograms showed marked cloudiness of the right frontal sinus with destruction of the upper wall of the orbit. Under colonic ether-anæsthesia, the inner table of the right frontal sinus was exposed. The outer table had been removed over an area 3 by 5 cm. at former operations. The trouble was located in the fronto-ethmoidal cells, extending posteriorly toward the apex of the orbit. It was not practicable to drain through the nasofrontal duct alone, hence a small external drain was left in the outer end of the wound.

Comment.—Convalescence was slow, time being allowed for the abscess area to heal from the bottom. The patient was dismissed seven weeks after the operation, with a satisfactory result.

CASE 2

A man, aged thirty-two years, had had pain in the region of the right frontal sinus for ten years. Four external operations and one intranasal operation had been performed. None gave complete relief.

Examination disclosed a small bead of pus near the opening of the right nasofrontal duct, which admitted a medium-sized probe. Vision was 6/30 in the right eye, and normal in the left eye. The visual fields and fundi were normal. The ophthalmologist was of the opinion that the visual defect of the right eye was due to an error in refraction. Roentgenograms showed the frontal sinuses to be of the large-cell variety. The fronto-ethmoidal cells were well developed. There was definite clouding of the right frontal sinus and a large defect in the roof of the right orbit. The right frontal sinus did not communicate with the left, and there was no evidence of involvement of the left side. Near the outer rim of the sinus was a small lead to an abscess of the orbit which extended almost to the apex. This was widely opened and drained laterally, as in the previous case. The nasofrontal duct was enlarged. The area of the abscess was allowed to fill from the bottom. The patient was dismissed one month after the operation. The symptoms had been entirely relieved by the operation and the patient had been free from purulent discharge from the nose and the orbit for ten days.

Comment.—This case is similar, so far as operative data are concerned, to Case 1. In both there was long-standing infection of the orbit, but in neither had there been any noticeable effect on vision.

CASE 3

A man, aged forty-five years, who came to the clinic early in 1927, stated that two years previously, following acute infection of the upper respiratory tract, he had experienced pain in both frontal regions. Because of the cloudy appearance of the roentgenograms the antrums had been irrigated, but results were negative objectively and subjectively. During all this time, there had been a purulent discharge from the right side of the nose. Eighteen months following the onset of symptoms, and six months prior to examination, acute pain, with loss of vision, developed in the right eye. One week later the purulent discharge from the right side of the nose increased.

The roentgenograms showed irregular frontal sinuses; the right one was opaque, but the outlines could be made out. The right sinus extended to the left of the median line. The fronto-ethmoids were distinct on the left, but not on the right. They extended to the rim of the orbit. There was a circumscribed defect in the right orbit. Both middle turbinates had been partially removed previously. The nose was free of pus. Attempts to pass a probe into the right frontal sinus were unsuccessful. There was almost complete amaurosis of the right eye, the only evidence of remaining vision being a small island on the temporal side. The vision of the left eye was normal. There was proptosis of the right eye downward and slightly forward. The left fundus was normal; the right showed definite optic atrophy.

Under colonic ether-anæsthesia the periorbita was elevated, followed by the escape of pus. In the necrotic floor of the sinus was a large defect. The whole floor was removed. The nasofrontal duct was entirely sealed off. A new duct was made large enough to admit the little finger.

The patient recovered uneventfully and was dismissed from the hospital on the sixth day following operation, and from post-operative treatment two weeks later.

Comment.—Complete relief of pain and cessation of purulent nasal discharge followed the operation immediately, but there was no change in the vision of the right eye. Two months later the eye was completely blind.

SUMMARY

These three cases illustrate a type of orbital disease complicating suppurative sinusitis. In each case the fronto-ethmoidal cells extended posteriorly close to the apex of the orbit, preventing satisfactory drainage through the nasofrontal duct. This anatomical arrangement was in itself sufficient to account for the failure of the operations performed elsewhere in the first two cases. In all the cases an intra-orbital abscess was present but there was no evidence of an extension of the infection through the periorbita, or of an orbital cellulitis.

So far as the location, extent, and nature of the orbital abscess are concerned, there was little difference between the two cases without visual disturbance, and the one with complete blindness.

In Case 3, the nasofrontal duct was closed and although there was partial drainage of the frontal sinus through the ethmoidal cells, this drainage did not prevent an increase in the

intra-orbital pressure sufficient to cause optic atrophy and blindness.

In general it may be said that: if there is a definite orbital complication accompanying infection of the frontal sinus, an external operation which provides good exposure of the area involved, the establishment of wide communication with the orbit, and the opportunity for the removal of the diseased tissue, is the procedure indicated.

Reviews and Retrospects

PERIARTERIAL SYMPATHECTOMY*

BY GAVIN MILLER, M.Sc., M.D., AND MARK KAUFMAN, M.D.,

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A review of recent medical literature reveals the interest aroused during the past few years by the opening up of the sympathetic nervous system to surgical intervention. Considerable discussion has arisen as to the value of, and the exact indications for, the adoption of these new procedures. Introduced by Leriche, Hunter and Royle, and Jonnesco, such operations as periarterial sympathectomy for certain circulatory disturbances in the extremities, sympathetic ramisections for spastic paralysis, and cervical ganglionectomies for angina pectoris, have aroused considerable enthusiasm. As always follows a too enthusiastic reception of a new therapeutic approach, the pendulum is now swinging the other way, on this continent at least. There can be seen a growing tendency to give up the whole idea. While unquestioning adoption of a new method is to be deplored, equally deplorable is a too hasty reversal of opinion and the throwing overboard of an idea which might contain possibilities of great value.

Although all of these procedures have been critically investigated, periarterial sympathectomy has received, perhaps, a greater amount of attention than any of the others. This can be attributed to the comparative frequency of painful and trophic lesions of the extremities, which failed to respond to the numerous therapeutic measures attempted to relieve them. It can also be attributed to the ease with which periarterial sympathectomy can be performed in comparison to lumbar or cervical ganglionectomy.

The sympathetic nerve supply of arteries is present as a network of fibres lying in the adventitia, and the operation of periarterial sympathectomy consists in the removal of that adventitia, and its contained nerve fibres, over a distance of from 5-10 cm. The detailed technique would necessarily depend on the vessel to be exposed and various operators have contributed their own original variations to the method of effecting the decortication. Originally an attempt was made to strip off the adventitia in one continuous layer. Later, efforts were made to lift off the adventitia by injecting normal saline, or novocain solution under it so that it could then be the more readily removed. Later still, operators contented themselves with painting the adventitia with alcohol, or phenol, in an endeavour to destroy the sympathetic nerve fibres in the area thus treated.

Though the operation can be performed with comparative ease, numerous accidents have been reported. Among these may be mentioned wound infection with secondary hæmorrhage, perforation of the artery, at times with the formation of a false aneurysm and occasionally thrombosis of the artery resulting in gangrene of the extremity. It can thus be seen that the operation is not without a certain element of risk.

In 1913 Leriche[1] published an article in which he called attention to the increased warmth and hyperæmia produced in an extremity following the removal of the periarterial sympathetic nerves lying in the adventitia of the femoral artery. Little attention was paid to this during the years of the war and the period immediately following it. From 1921 on, however, interest was again awakened by further publications of Leriche, in which he gave a record of his results. Applying the theory that he was able to produce by his operation vasodilatation of the capillaries of the affected limb, together with increased warmth and hyperæmia, he carried out this procedure in numerous conditions which appeared to have an underlying allied vascular origin.

He gradually extended the scope of the operation to include such conditions as Raynaud's disease, erythromelalgia, thromboangiitis obliterans, causalgia, painful stumps, varicose and trophic ulcers, tuberculous sinuses, and non-union of fractures; in fact, any condition that had for its pathological basis a possible interference with the neuro-vascular mechanism of the affected extremity. Going still further, he applied the operation to any condition which might conceivably be aided by

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the hyperæmia, which he believed this operation produced. This certainly gave a wide scope for possible indications in the hands of enthusiasts.

The direct result of this was the production of a voluminous literature by numerous observers, some confirmatory, others not.

In Leriche's work two points stand out. First, that Leriche has stated that, in man, the important vasomotor stimuli pass down the perivascular sympathetic nerves, and secondly, that ablation of these pathways by periarterial sympathectomy produced vaso-dilatation and hyperæmia of the extremity. On these two statements rests the rationale of the procedure. Disprove these and the operation becomes purely empirical. Leriche further confessed that he was unable to produce vasodilatation by periarterial sympathectomy in experimental animals. In spite of the apparent contradiction between the latter experimental findings and his clinical experience, Leriche felt that the clinical results warranted the continuation of the procedure.

Unfortunately all experimental work fails to show an anatomical or physiological basis for this operation, so it must be considered at present as a purely empirical therapeutic measure.

A good deal of work has been done to establish whether or no the vasomotor stimuli pass down the perivascular sympathetic nerves. This work has been carried out by careful anatomical dissections and by means of physiological experiments. Anatomically, Potts[2] showed in the case of the leg, and Kramer and Todd[3] in that of the arm that the vasomotor nerves reach the blood vessels by means of the peripheral nerves and that their distribution to the vessels is segmental. Langley[4] has stated that there is no reason to believe, except perhaps in the case of the abdominal aorta, that any long centripetal nerves run down the length of the vessel. Hirsch[5] concluded that there was no histological basis for the results claimed for periarterial sympathectomy, and dissection convinced him that sympathectomy cannot interrupt any long paths running down the vessels; so anatomically the basis for the Leriche operation lacks confirmation.

Physiologically, the same fact holds true. Wiedhoff[6] produced vasodilatation in the arm by anæsthesia of the brachial plexus, but failed to produce it by periarterial sympathectomy of the axillary artery. Milko[7] produced volume changes in limbs by sectioning the sciatic nerve but failed to produce any volume changes by stimulating the femoral sheath. Böwing[8] showed that vaso-motor reflexes are abolished by the experimental section of the peripheral nerves but not by periarterial sympathectomy.

Similar observations were made years ago in the classical experiments of Claude Bernard and more recently confirmed by numerous other observers (Schmidt,[9] Friedrich,[10] Mosser and Taylor,[11] etc.). In many surgical clinics it has further been repeatedly demonstrated that lumbar ganglionectomy produces a definite hyperæmia whilst periarterial sympathectomy does not.

Clinically, however, we are met with numerous reports besides those of Leriche, of definite improvement in various cases following periarterial sympathectomy and we ourselves have certainly observed relief of pain following this operation. How can we reconcile these clinical observations with physiological and anatomical facts, which tend to disprove the rationale of the procedure? Is it possible that the good effects, for example, the relief of pain, can be accounted for by any of the following factors:—

1. Following periarterial sympathectomy there is a marked constriction of the artery amounting, at times, to an almost complete obliteration of the vessel at the site of the decortication and lasting, at time, for several hours. Lewis[12] has shown that ligature of the femoral artery in thrombo-angiitis obliterans causes relief of symptoms presumably through the establishment of an efficient collateral circulation. Is it possible that the former has an effect which is in a degree comparable to the effect of ligation, though this would appear improbable?

2. It has been suggested that the localized hyperæmia produced by the operative trauma may play a part in the relief of symptoms.

3. Though the arteries receive their nerve supply segmentally, there is an overlapping of their segmental distribution with a network of intercommunicating nerve fibres. It is becoming more and more accepted that sympathetic nerve fibres can convey painful impulses. It may be possible that painful impulses pass up the vessel from segment to segment, and that decortication may interfere with the transmission of these impulses sufficiently to produce some relief of pain.

4. Expression of pain is a subjective symptom varying to a certain extent with the emotional stability of the patient. The long continued pain of peripheral vascular disturbances produces a gradually increasing neurotic state in the patient. Further, it is well recognized that withdrawing the attention of a patient suffering from a chronic ache or pain will result in a lessening of the complaint of this symptom. Is it possible that the operation, as an operation, will contribute a certain share to the relief experienced by the patient as a purely psychical effect?

In attempting to arrive at a conclusion as to the value of this operation from a study of the literature and from cases in which periarterial

sympathectomy has been performed we find that, although the anatomical and physiological findings offer no sound basis for the continuation of the practice of the procedure, we are faced by so many reports of clinical improvement that we hesitate to condemn the procedure. While we agree with many writers that a more careful study should be made of the sympathetic nervous system in relation to this operation, we are not completely convinced that this operation is an entirely useless operation, as suggested by McNealy.[13] We still feel that in cases of vascular disturbances in the extremities associated with severe long continued pain, where all attempts at relief of pain have failed, and the physician is faced with the ultimate necessity of amputation, this procedure is worthy of a trial, empirical though it may be. Certainly, a more rational procedure would be a lumbar ganglionectomy which would remove the vasomotor fibres before they were distributed to the vessels. This, however, is a difficult surgical procedure, not lightly attempted by the average surgeon.

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Unexplored Field of Preventive Medicine in Private Practice.—W. F. Draper, Washington, D.C., states that public health organizations owe their origin to the medical profession. To it also they owe a large part of the scientific information on which they base their methods. To the observations and reports of medical men in practice they are constantly indebted for knowledge of the occurrence, the prevalence and the nature of the diseases which they attempt to combat; but, unfortunately, such is the tradition, the custom, the accepted mechanism of health practice in this country, that only to a slight extent have they utilized or attempted to make use of the enormous potential power of the practicing element of the medical profession in the cause of preventive medicine. Unfortunately for the present purpose, he has been trained to think more about disease than about health; but there is no more adaptable person in all the world than the physician, and if he can be persuaded of its desirability he can soon learn to enlarge his point of view. The most important incentive is the opportunity for service to humanity. This appeal has never been made to physicians in vain. The second incentive which may be mentioned is the fair promise of increasing remuneration. It is believed that a false sense of delicacy and false interpretation of ethics is what has stood in the way of developments along this line rather than the unwillingness of patients to pay for advice in advance of actual illness. The third item is hardly so much an incentive as a compulsion. The time is not far distant when the public is going to demand protective advice from the physician. The time is coming when a physician will be severely criticized for failure to offer advice on hygienic matters when he has had opportunity for making the necessary observations. His reply that he was employed to treat a case of rheumatism, not to criticize the family diet, will come to be considered as inadequate. Is the medical profession equipped at the present time to offer sound, dependable and consistent advice on all the questions of domestic and personal hygiene which may be propounded by those seeking advice. Little attention has been paid to this aspect of medicine in the colleges up to within the most recent years, and hardly anywhere at the present time can the formal instruction in a purely medical course be described as fully adequate. The Public Health Service has felt so strongly that an immense power for good was not being adequately utilized that it is very desirous of helping along a process of evolution which, although much hindered and delayed, appears to be ultimately inevitable. It is not to be supposed that every physician will be a competent psychiatrist; nevertheless, present-day training should be sufficient, taken in conjunction with the intimate relation of confidence that should exist between physician and patient, to lay the basis for some very effective work in mental hygiene.—*J. Am. M. Ass.*, Aug. 13, 1927.

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Editorial

HARNESSING PEGASUS

A WELL-KNOWN definition of "life" is that of Herbert Spencer, in which that great thinker regards it as "the continual adjustment of internal to external relations." We might, perhaps, phrase it as "the adaptation of function to environment." Whatever criticism may be launched against this definition, it at least has the merit of focussing attention upon two contrasting factors—the animal constitution, in large part the outcome of heredity; and the physical environment. This conception also connotes conflict. Adjustment of the animal organism has been going on for æons, with the gradual elimination of the unfit, and the evolution of a superior, because more resisting type. This "grading," so to speak, is still going on, and will continue to go on, for Nature's methods are ruthless and inexorable, in the degree that man's knowledge and will will permit, until the advent of that fuller, better, day, when he shall not only possess the earth, but have dominion over it. That dominion will eventually, we hope, be complete. Man's attempts at this world-conquest have been effective only within recent times, and, moreover, have been aimed largely at the control of his environment. They have been taken up chiefly with what we now regard as the obvious: such matters as, vaccination, isolation, disinfection, the supply of pure water, safe milk and other food products, the disposal of sewage, heating and ventilation. In these directions the best talents of bacteriologists, public health experts, and engineers have been exhibited. This is, beyond question, all to the good, and the final proof that modern methods of handling disease, particularly its prevention, are efficacious lies in the fact that the span of life has been materially increased during the period to which we refer.

In the past, the efforts directed towards the control of man's environment, in the matter of the public health, have derived their inspiration and impetus from the medical profession. Their success has been conditioned by the state of medical knowledge at the time and the degree of enlightenment of public opinion. The proper path has, often enough, been pointed out, but before it will be travelled the community at large must see the necessity, and be willing to meet the cost. Fortunately, there is evidence that the general public is at last wakening up to the desirability of ensuring and maintaining the health of the body politic. A glance at the newspapers will convince one that public health topics are much to the fore, and that there is an increasing demand to know on the part of the lay public. Instruction of this kind, though, it is true, largely restricted to questions of diet and personal hygiene, has usually been left to amateurs, not to say quacks and faddists. It is high time that the public should be given systematic and authoritative information by the regular medical profession, acting, of course, in its corporate capacity. Only by this mutual understanding and co-operation will success be achieved. The Canadian Medical Association has, it should be noted, taken upon itself to provide such instruction through the columns of the public press. This is a highly commendable step forward. The same end has been sought through the medium of the public lecture. For five or six years past, a series of popular talks on personal and public hygiene have been delivered at the School of Hygiene and Public Health at the Johns Hopkins University. These are known as the De Lamar Lectures, as they have been made possible by the philanthropic bequest of the late Joseph R. De Lemar, in accordance with a wish expressed in his will "to give to the people of the United States generally the benefits of increased knowledge concerning the prevention of sickness and disease, and also concerning the conservation of health by proper food and diet." The advantages of co-operation may be seen particularly in the campaigns against tuberculosis and cancer,

which have been much furthered by the newer policy of the medical profession of taking the public into its confidence.

The problems connected with Public Health are by no means all solved. The modern advances in science, as well as the higher demands of civilization, have altered their bearing considerably. Rapid transit, increased intercommunication between peoples, cold storage, and the sterilization of food-stuffs, are only some of the factors that may be mentioned. Nor has the last word been said in regard to lighting, heating and ventilation. A number of questions are beginning to be asked. To what elements of the spectrum are the good effects of sunlight due? What is the best artificial substitute for sunlight? How far are ultra-violet rays of benefit? How should heating and ventilation be controlled, so as to meet the optimum needs of the average individual under special circumstances? Many such matters will have to be investigated and proper conclusions drawn. In fact, our study of our environment must be more detailed and specialized than it has been in the past.

One other point should be emphasized. Before we can cope with the altered conditions, and make further progress in harnessing the forces of nature for the benefit of our bodily health, we must learn the points of contact between our bodies and their environment. We must learn what are our physiological needs, and we shall then know how best to adapt ourselves or modify our environment. It is here that the application of the new physiology comes in. Courses in special physiology as applied to the problems of preventive medicine, such as have been instituted recently in the School of Hygiene of the University of Toronto, and described by Dr. C. H. Best elsewhere in our current issue, will be of great value. Not only will they be helpful to medical men who wish to specialize on the various phases of public health work, but they ought to be made available, as far as possible, to sanitary engineers, whose problems are no longer merely those of mathematics and engineering, but have broadened out so that they touch on bacteriology, biology and epidemiology. Only by attacking the various problems involved from all sides can we hope to make farther advances.

A. G. NICHOLLS

EXPERIMENTAL EPIDEMIOLOGY

THERE are a great many questions regarding epidemiology about which we really know little or nothing that may be expressed in bacteriological terms. What happens when an epidemic slowly emerges, gathers increasing momentum until it reaches its climax, and then dies gradually away until the disease falls back to the endemic level it started from? What are the respective shares of microbic virulence and host resistance? Is the decline of an epidemic due to a falling off of virulence, or to the exhaustion of susceptible material? Are the hosts which survive at the end alive because they are by nature more resistant, have they become resistant during the epidemic, or have they escaped by chance? Our ignorance of the answer to all these questions is apparent, and also of the answer to more specific questions. For example, we know little of epidemic influenza and have not a notion why there was a dreadful world-wide epidemic in 1918. We have not the least idea why smallpox became a mild disease 30 years ago, and generally continues so, although occasional outbreaks are as virulent as formerly. Why has scarlet fever progressively changed its character and become less virulent since 1900, so that, while more prevalent than ever, its mortality has steadily become less and the clinical descriptions of the text-books of the last generation are scarcely recognizable? Or, in the reverse, why has diphtheria recently become more virulent all over the world, so that the past year has everywhere shewn an increase in the number of cases and in the percentage of deaths instead of a steady decline as in previous years?

The answers to these and similar questions are at present unknown and are likely to remain so for a long time if only human facts

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are available. Sooner or later medicine reaches the point where progress is hampered by its respect for human life, and it is only by resort to experiments on animals that one can get further. It is, therefore, with a keen appreciation of its value that we welcome the researches carried on by Drs. Flexner, Webster and others at the Rockefeller Institute, by Dr. Topley in Manchester, and by Drs. Neufeld, Lange and others in the Robert Koch Institute, in Berlin, on epidemics of mouse typhoid and similar diseases, which promise to add much to our knowledge of epidemics, although we realize that the results obtained cannot be transferred to humans without some qualification. At the same time we must acknowledge that it is only by similar experiments that essential information can be gained.

It has been shewn that it is possible to initiate an experimental epidemic among mice, and to maintain its activity for an apparently unlimited period of time, and also to modify the course of the epidemic so as to bring about a premature decline. In the experiments on the initiation and maintenance of epidemics it was found that the numerical relation between infected and susceptible mice and the rate of immigration of fresh susceptible cases into an infected group exerted a decisive influence on the mortality rate. An attempt was made to determine whether any form of redistribution of the population carried out after the initial admixture of infected and susceptible animals would in any way interfere with the occurrence of the wave of mortality, or tend to bring to an early close an epidemic that had already developed. Experimentally, it would appear that dispersal carried out during the earlier phase of an epidemic tends to reduce the total mortality. Its influence is much slighter when the wave of mortality has commenced to rise, and once it has commenced to subside it is unlikely the dispersal will have any appreciable influence. It would seem that for the development of a high epidemic potential full play must be given to the effect of chance associations by the maintenance of the population at a reasonably high level, and the most favourable conditions for its prolongation appear to be provided by the continuous immigration into the group of fresh susceptible individuals.

If we look beyond our experimental results and include the bacteriological data which have been obtained in the observation of naturally occurring epidemics, it may be possible to obtain further light on the nature of the epidemic process. The first line of enquiry is in connection with the so-called carrier process. It is clear that the clinically recognizable cases of disease in an epidemic are only a fraction of the infected individuals who become carrier-hosts. Adequate bacteriological examination will reveal numerous hosts suffering from some atypical disturbance of health and from whose mucous surfaces or excreta the specific organism can be recovered, and others still more numerous who are harbouring the parasite without any definite evidence of illness. In some infections such as cerebro-spinal fever, we know that the cases of disease are in an insignificant minority, and the actual outbreak of disease may number only a few cases among many thousands who may be acting as hosts. The real epidemic is an epidemic prevalence of meningococci in the nasopharynges of the population exposed. We may be fairly certain also that poliomyelitis and encephalitis lethargica behave much like cerebro-spinal fever. It would appear from this that the efficacy of our present methods of dealing with infective disease should be reconsidered. In considering the probable efficacy of the *isolation of infective disease*, the experimental and bacteriological data at our disposal do not suggest that this method has much to recommend it as a measure designed to reduce the frequency of disease and death arising from an endemic infection. The isolation hospital may be dependent on the grounds of the benefits which it confers on the sick persons for whose treatment it provides, but as a means of lessening the general incidence of infective disease it receives little support on scientific grounds. The point at issue is whether the spread of infection from diagnosed cases to susceptible hosts forms such an important fraction of the total spread of infection that the suppression of this one avenue will appreciably lower the incidence of disease. If the isolation of the sick offers little hope of the control of infectious disease, can we expect better results from the detection and isolation of carriers? In most diseases, and

in all cases in which we are concerned with an epidemic infection widely distributed among a large uncontrolled population, the detection and isolation of carriers has been shewn to be impracticable. It would seem that our best hope of controlling those infectious diseases, which refuse to yield to those measures of general sanitation which are compatible with the modern organization of our social life, lies in devising some effective means of immunization, and so raising the average level of herd-resistance. However, we cannot envisage with equanimity the immunization of the whole of mankind to all the infectious ills which flesh is heir to. We therefore very heartily welcome any experimental methods which promise to add anything to our knowledge of epidemics and how to prevent or modify them.

H. B. CUSHING

PSYCHOLOGY IN MEDICAL EDUCATION

THE importance of some knowledge of psychology to the general practitioner is gradually being forced upon the profession. The physician who has been trained to study and treat only the patient's body, and fails to take into consideration the patient's total personality and his mental attitudes, may often find that, although his diagnosis has been correct and his treatment of the case along the most improved lines, the slow progress in recovery may be disappointing owing to his failure to appreciate the mental state of his patient. For this reason the importance of some knowledge of psychology is gradually claiming more and more attention in our medical schools. Psychology as taught in the faculty of arts in many universities does not cover the aspect of it required by medical students, and there is a definite need for a course in psychology and psychiatry for medical students, which should be specially adapted to the needs of the physician.

In this number of the *Journal* we present our readers with an article on the position of psychology in medical education, by Professor J. W. Bridges, which gives in a clear and comprehensive way the outline of a course in this science which would be of value to students in medicine. Although this article was written chiefly for teachers on the staffs of medical schools it will in our opinion be found interesting and instructive by all members of the profession. Furthermore we publish it as an introduction to a series of articles by various psychologists which we hope to present to our readers shortly, and which will set forth the more important facts of this new science in an interesting manner, and be of practical value to all members of our profession.

THE CURE OF HAYFEVER

IN spite of the widespread treatment of hayfever by the method of inoculation with the causative pollen, we have comparatively little evidence by which we may estimate the permanence of the results obtained from such treatment. The general feeling is that while this form of treatment has given better results than any other, it is still uncertain whether hayfever can be permanently cured for however completely relieved of symptoms a patient may be for one season a recurrence appears to be liable if treatment is not given each year.

It is therefore of considerable interest to have a report by Dr. Chandler Walker* on a fairly large series of cases treated and observed by him over a number of years. He has, as he informs us, always had in mind the possibility of producing permanent results, and now, after a period of ten years' observation he has collected a series of 100 cases whom he feels justified in regarding as cured. All of them have been without symptoms for two years, and 78 have had three or more years of freedom without treatment.

The method of treatment in these cases

* One Hundred Cases of Apparently Cured Pollen Hay-Fever: I Chandler Walker, *J. Am. M. Ass.*, March 10, 1928.

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was that of inoculation with the specific pollen, injections being given at weekly intervals for from 13 to 16 weeks before the usual onset of symptoms. An attempt has been made by some in recent years to shorten the period of treatment by giving the inoculations at shorter intervals, and some even advocate injections twice in the day, but Dr. Walker evidently relies on the more deliberate method. He shows plainly how variable patients are in their response to treatment, and furthermore how difficult it is to judge when the treatment may safely be discontinued. There may be freedom from symptoms for one year after treatment, and recurrence in later years. The skin tests are not infallible guides as to when cure is obtained, as they may continue to be positive even while there is an absence of symptoms. On the whole, however, it seems safe to say that negative skin tests mean that a cure has been obtained and that treatment may be stopped, while if they continue to be positive treatment should not be discontinued until one or preferably two seasons have elapsed without symptoms.

This carefully worked out series will be a valuable aid to those who have to judge whether and when hayfever patients may with safety discontinue treatment: a point of some difficulty. It will also serve to clarify our prognosis as to the ultimate cure of this distressing condition.

H. E. MACDERMOT

SCARLET FEVER AND DIPHTHERIA

THE history of medicine teaches us that most infectious diseases gradually change their character from one generation to another. The terrible plagues of the Middle Ages are in many cases unrecognizable from descriptions which have come down to us. Diseases regarded at one time as almost inevitably fatal become comparatively benign, while others become progressively more virulent. The factors concerned in this change are largely unknown; whether it is due to a change in the customs and habits of mankind, to a gradual immunization of the population, or to an alteration in the exciting organism is uncertain. So far we have been unable to make actual experiments on the course of epidemics, and this makes especially interesting recently published observations on mice and other small animals in captivity. It has proved possible to produce epidemics in large cages of these animals and then to observe how these epidemics may be modified by changing the conditions.

The recent history of two of the most important of the infectious diseases illustrates very strikingly this change in the character of diseases. Scarlet fever has always been dreaded on account of its after-effects and the persistence of infection necessitating a long quarantine. Reports from all over the world emphasize the fact that in recent years the disease has been gradually losing its virulence. The mortality percentage which used to reach 20 per cent is now only one per cent of all cases. If anything the case incidence has increased. This is difficult to determine definitely because the average case of scarlet fever, at the present time, is so mild that probably 25 per cent of the cases are never recognized. The descriptions in the text-books of twenty years ago are no longer applicable, the incidence of the dreaded nephritis has altogether changed and it has become a rare event, while the tendency to coincident arthritis and endocarditis has greatly lessened. It has, in fact, become a much less serious disease than measles, but also so prevalent that few escape it.

On the other hand diphtheria has had the opposite tendency. Reports from all over America in the last two years and also from England and Europe indicate that the disease is definitely becoming more virulent. In spite of improvements in methods of diagnosis and treatment and education in the use of antitoxin, the mortality from the disease during the past year has been definitely higher. Most infectious disease hospitals report gradually increasing death-rates and a worse class of cases. The tendency everywhere is to use larger and larger doses of antitoxin, and it is the belief of most authorities that the use of former dosages would be attended by a still higher mortality. Fortunately, we are still able to control the disease

by the use of large doses of serum, by the use of intravenous therapy, and particularly to limit its spread by mass immunization, so that it does not offer a serious threat.

It is to be hoped that the newer methods of experimental epidemiology will throw some light on this obscure question of the changing virulence of infections. H. B. CUSHING

THE DANGERS IN THE USE OF ANTITOXIN

THE various antitoxic sera as dispensed at the present time shew an immense improvement over similar preparations of fifteen or twenty years ago. Concentrated to one-tenth of their former bulk, freed by precipitation from most of the reaction-exciting proteins, they rarely give rise to the various forms of either the immediate or the late types of serum sickness which used to cause so much distress and even endanger life. It is, however, noticeable that the newer sera, such as those of meningitis, scarlet fever and erysipelas are more apt to excite reaction than the older in the preparation of which we have learned much from experience. The newer sera appear to be more hastily prepared and less carefully matured and concentrated.

Since the reaction-exciting substance is the blood-serum of the horse and not any specific antitoxic substance, it makes no difference if two or three sera are injected simultaneously, supposing there is definite indication for such polypharmacy. Of course in such a case the chance that one of the sera is irritant, is increased. Although the danger in the use of antitoxin is now greatly minimized, it still exists; and the immediate reactions are much more dangerous than the later ones, and possibly, one in a hundred thousand injections may prove fatal. The occasional serious discomfort and the extremely rare mortality necessitate a certain amount of precaution when foreign serum is injected. This is particularly true in certain classes of cases that experience has shewn to be peculiarly liable to serum reactions. These are briefly the following:

First, and by far the most important are those giving a history of abnormal protein sensitization, *i.e.*, a history of asthma, hay-fever, recurrent eczema, urticaria or former serum sickness.

Second, adults as compared with children under puberty.

Third, all persons in normal health; especially those who are afebrile; serious cases of diphtheria, scarlet fever, etc., seldom give any reaction.

Fourth, those giving a history of having had an injection of serum at some previous period, whether it excited any reaction then or not.

Anaphylaxis, however, is rather a bug-a-boo of the laboratories; men are, as a rule, seldom affected by it, and only a small percentage of the recorded fatal cases of serum sickness give a history of previous injections of serum.

In these four classes of cases, antitoxin of any variety should be given cautiously, and the injection preferably preceded by some form of test or desensitization to avoid trouble. In a seriously sick child where delay is a matter of serious moment, no hesitation is required, the danger being infinitesimal.

H. B. CUSHING

THE MINUTE IN NATURE

WE have before us the manuscript of an address, entitled "The Minute in Nature," which was delivered by Professor L. W. Bailey, of Fredericton, N.B., on January 7, 1874, at Providence, R.I., probably before the Franklin Society of that place.

L. W. Bailey, LL.D., F.R.S.C., was Professor of Natural History in the University of New Brunswick, and one of the early members of the Royal Society of Canada. Professor Bailey did much for the geology of the Maritime Provinces, and those who had the privilege of his acquaintance will remember well his learning, and his keen intellect, and the numerous and valuable

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contributions to his subject which he presented to the Royal Society. Such were his zeal and industry that he prosecuted his observations until but a short time before his death, which occurred at a ripe old age.

The address in question exhibits wide scholarship and is written in a lucid, easy and altogether charming style. Its purpose was to bring to the notice of a mixed audience the importance of the infinitely little, and to trace the play of law and order in realms unknown to those without scientific training. The portions which interest us specially are two or three pages dealing with bacteria and their relationship to disease, a subject that was very much in the air at the time of Dr. Bailey's lecture.

"The opinion that various contagious diseases are produced through the agency of minute living beings, filling and polluting the air, seems to have prevailed from quite an early period, and the statements of some of the earlier writers upon this subject are interesting as showing to what extremes the imagination may be carried through the influence of ignorance of superstition.

"Thus a writer in the Philosophical Transactions of the British Royal Society for 1677 gravely proposes to frighten and scatter these pestiferous armies by the noise of drums, trumpets, and cannon, especially recommending the cheerful shouting of women and children for this purpose. Another writer believed that the whole air was filled with little men and animals, countless numbers of which are inhaled and respired with every breath. It was the opinion even of many distinguished physicians in France, Italy, and England that the plague was produced by microscopic animalcules, and that the pestilence which raged in Marseilles in 1720 was to be ascribed to mite-formed animalcules, with crooked beaks and claws.

"Though many of these opinions were obviously absurd, and the result of visionary theories which the advance of knowledge could not fail to do away with, yet the fact that organic germs do exist in countless numbers in the atmosphere, in water, and even as parasites within the bodies of living animals, and that they are intimately connected with the development and spread of infectious diseases, cannot be doubted. There is not, indeed, a single animal, not even excepting man himself, which is not more or less infested by internal or external microscopic parasites. The facts to which I have alluded, that in their larval form they withstand changes of condition ordinarily fatal to most animals and are thereby rendered well-nigh indestructible, explains the readiness with which they may be diffused, and the difficulties to be overcome in causing their extermination, while their wonderful rapidity of reproduction will readily account for the quickness with which epidemic diseases, if really attributable to them, may be extended over large areas. Like the seeds of plants they may retain their vitality for indefinite periods, springing into active life only when they meet conditions favourable for their development. Thus they may remain dormant, and therefore harmless, in the body of one animal, while received with the food into that of another, they may there multiply with astonishing rapidity, impairing the health if not destroying the life of the person thus afflicted. A sufficient safeguard against such injurious results, so far as they are dependant upon the use of animal food, may be found in a thorough *cooking* of that food, a temperature of 212° being probably sufficient to destroy all animal germs, but those which are introduced by respiration into the lungs are not so easily guarded against. The only effectual remedy, so far as the latter are concerned, is the preservation of the body in a healthy state, which is unfavourable for the growth of these parasites, and the removal, in large communities, of all collections of filth and putrescent matter, from wh ch such seeds of malaria may spring."

The extract quoted above shows that Professor Bailey was a convinced believer in the etiological relationship of living organisms of microscopic size to infectious disease, and this at a time when the complete scientific proof was lacking. As he points out, the idea was not new. In fact, more than one great name might be brought forward, among them Fracastorius (1546), Kircher (1658), Plenciz (1762), and Henle (1840), as favouring the doctrine of a *contagium animatum*. These men, however, were merely indulging in prophetic visions. The proof of the correctness of the theory was the work of Pasteur, Lister and Koch.

Lister, under the inspiration of Pasteur's work on fermentation, as he states in his famous letter to Pasteur in 1874, had been practicing the antiseptic method of wound treatment for nine years. Pasteur, in 1874, was definitely advising the sterilization of all surgical instruments by passing them through a flame, and he also advocated the sterilization of all surgical dressings, by heating them to a temperature of 150° C. before using. Davaine had discovered the bacillus of anthrax in 1865; and Villemin in 1868, and Klebs in 1873, were asserting the infectious nature of tuberculosis, on the basis of their researches. Pasteur was working on the anthrax problem during the same period, and had practically proved that the bacillus of Davaine was the cause of the disease, though it was left for Koch to put the final touches to the work and make the matter a scientific certainty, which he did in 1876. Bailey must have been aware of what was going on, probably through his father, Professor J. W. Bailey, the microscopist of West Point, and through his own studies. His mind was quick to grasp its importance, and his researches into "The Minute in Nature" led him to appreciate the reasonableness of the "germ-theory" and to state clearly certain practical measures which he felt could be adopted to prevent and control infectious disease. His name may well be honoured by us as that of a man of vision, one of those who forecasted the discoveries which, indeed, were on the brink of being finally demonstrated through the experimental research of his great contemporaries.

A. G. NICHOLLS

THE DEATH OF SIR DAWSON WILLIAMS

IT is with deep regret that we learn of the sudden death on February 27th last, of Sir Dawson Williams, late Editor of the *British Medical Journal*. As announced in our last issue, Sir Dawson had only within the past few weeks been obliged to give up his editorial work. His health had for some time been unequal to the severe strain which he imposed upon himself, but it was hoped that with his retirement from work he would be able to enjoy his well earned leisure.

The results of his work are to be found in the high standard of the journal to which he so whole-heartedly devoted himself for the last thirty years of his life, and which reflects in no small degree his intellectual as well as his personal qualities.

Soon after Sir Dawson's retirement a fund was opened to provide a testimonial in recognition of his long and distinguished services. It is announced that the funds raised so far will now be devoted to some form of memorial. He had himself expressed the wish that any such funds should be used so as to link his name in some way with an object appropriate to his work.

MEDICAL LEGISLATION IN ALBERTA

WE learn from an editorial in the *Calgary Daily Herald* (February 20, 1928) that Mr. Fred White, member from Calgary of the Alberta Legislature, has asked for an investigation of conditions calling for inauguration of State Medicine." It will be interesting to learn Mr. White's views and aims in desiring an investigation of the practice of a profession demanding from its members a high standard of education, whose aims are so altruistic, and upon whose services the health of a community is so dependent. State control in the minds of many is a panacea for many ills. The advantages afforded by it are regarded as very doubtful by many in Great Britain, where wages are lower and the dependent class more numerous than we trust they will ever be in any province of our Dominion. The effect of any form of State Medicine in a country like

ours must be very problematical, and even in the limited form in which it has during the past year been attempted by the Minister of Public Health in Alberta, is liable to seriously interfere with private practice in the rural districts of that province.* The Hon. George Hoadley, Minister of Public Health, we are informed is a very successful farmer in Alberta, but success in farming involves little knowledge of medicine, or of the many problems connected with public health and preventive medicine. The Province of Alberta appears to be alone in considering that the public health can be regarded as a matter of business, and be safely entrusted to the knowledge and judgment of a farmer, successful though he may be. Already in a number of the States to the south of us, complaints have arisen on the dearth of physicians in the country districts. In a lengthy communication to the House of Delegates of the American Medical Association, officers and delegates representing 800,000 members of a National Farmers' Society complained that only a very small percentage of the graduates in medicine during the last ten years have taken up practice in rural districts, and that the number of districts without physicians and medical help is mounting higher and higher. For them the family doctor is rapidly becoming extinct. We shall watch with much interest the passage of this investigation through the legislature of this very progressive province.

* More effective in results for general good would appear to be temporary assistance to the erection and upkeep of small hospitals in the outlying districts—and provision made by which the income of physicians in partially settled districts might be increased.

Editorial Comments

ESTABLISHMENT OF RURAL HEALTH UNITS IN SASKATCHEWAN

Legislation was passed at the recent session of the House, whereby eight rural municipalities including towns up to 10,000 can combine to form a health district. The unit operating in this district will include one fully qualified medical practitioner specially trained in epidemiology, one sanitary inspector, one or two public health nurses, one secretary. A small laboratory will be maintained. The operating cost of this unit will be approximately $14,000.00 a year, half of which will be borne by the municipalities, and half by the Provincial government aided by a grant from the International Health Board of the Rockefeller Foundation.

Dr. P. W. Covington of the Rockefeller Foundation visited Regina, on March 15th, when he addressed the local Medical Society, outlining the work of similar units in the southern States.

The work of this unit will be entirely preventive and will embrace child welfare, control of communicable diseases, instruction and education of citizens along the lines of public health, inspection of milk and water supplies. Quebec has six of these units in operation. British Columbia has one, but Saskatchewan is the first province in Canada to enact legislation providing for their establishment.

There has been an attempt to introduce legislation by which chiropractors would be incorporated as a body possessing a definite status in the Province of Quebec, The Provincial College of Physicians and Surgeons were fully advised of the matter, and steps were taken for concerted action on the part of the college and the medical schools of the province, to place their views before the Legislature.

Representatives of these medical bodies were sent to Quebec, and it was made clear to the Legislative Council that they were strongly opposed to any such incorporation being permitted. As a result of these representations the Council definitely refused the request of the chiropractors.

HENRY JUNIUS SCHIRESON

We notice that a certain Henry Junius Schireson, of Chicago, who styles himself A.M., and M.D., has made his Canadian debut in Toronto. This individual poses as an expert in "plastic surgery," and delivered the opening lecture, on February 28, at a hairdresser's exhibition held in a leading Toronto hotel, sponsored, we are told, by absolutely reputable persons. The lecture was heralded by an interview in various responsible journals, in which assertions, such as these, were made: "Through the magic of facial surgery the path to the fountain of youth has been revealed." "Not all women are born beautiful, not all women may acquire the beauty over which poets rave, but any woman, if years, illness, sorrow, disease, or accident have left their marks, may have these

marks eradicated, and regain a youthful and attractive appearance."

The record of this enterprising "specialist" has been shown up in damning fashion by the *Journal of the American Medical Association* in its issues of February 4th and February 18th. According to our contemporary, Schireson was in 1911 refused a licence by the licencing board of the State of Illinois. Subsequently, he was, in at least two instances, convicted of illegal practice and served terms of imprisonment. About six years ago Schireson was granted a licence to practice, during the incumbency of a notorious Illinois official, later convicted of the fraudulent sale of medical licences. The so-called "Holland case" (*J. Am. M. Ass.*, Feb. 18, 1928, p. 548), is in itself sufficient to stamp the pretensions of this impostor. A young woman was operated on by Schireson on January 17, for the purpose of "straightening" her legs, and she paid him $800.00 in advance. Subsequently, examination showed that the crookedness of her legs was not due to any peculiar conformity of the bones, but to an excessive deposit of fat on the outer side. Schireson operated by cutting through the tibiæ. The result was disastrous. The patient's condition became so serious that a regular physician was called in and both legs were discovered to be in an advanced state of gangrene, necessitating amputation in order to save her life. Nothing was accomplished but the production of a streptococcal infection with the loss of both legs.

The plausible effrontery and nomadic habits of these gentry make them a particularly dangerous menace to society, and only full publicity of such cases as this will prevent the public from being gulled.

The Toronto *Saturday Night*, in its issue of March 10th, contains a full account of "Dr." Schireson's activities. This journal has been always active in exposing fraudulent pretensions in commercial and financial spheres, and now, by pillorying a particularly flagrant example of medical quackery, has added to the debt which the general public owes to it. As it points out, Canada has been not infrequently made the stamping ground for fraudulent schemers, who have been discredited in their own country.

A. G. NICHOLLS

Ethical Courses for Medical Students.—For many years the suggestion has been made at intervals that the medical student's education might usefully be rounded off with a lecture or lectures, given by an experienced general practitioner, on the proper conduct of practice. An experiment in this direction has now been made in London, and the November and December issues of the *St. Bartholomew's Hospital Journal* contain the text of a lecture on "Manners and customs in general practice," delivered at the hospital in October by Dr. L. G. Glover. The experiment was, no doubt, the outcome of an address which Dr. Glover gave to the Abernethian Society at St. Bartholomew's in 1926. It is interesting to compare the lecture with the syllabus, published last May in the *Journal of the American Medical Association*, of a course of six lectures which have been given during the past four years in the Washington University School of Medicine by the lecturer on professional conduct, Dr. Park J. White. Dr. Glover, in a simple and straightforward manner, trod the well worn path of English medical ethics, basing his discourse on the ancient rule in Augustinian monasteries for the master of the farmery, that "he ought to be gentle, good-tempered, kind, compassionate to the sick, and willing to gratify their needs with affectionate sympathy." If Dr. Glover laid almost unnecessary stress upon some of the rules of right conduct, this was as it should be in an address to hearers unacquainted with medical life. The American syllabus, on the other hand, though equally designed to keep the new practitioner in the narrow way of orthodoxy, is garnished with arresting subheadings. Thus, under the title "Acquiring practice properly" we find an item "Medical salesmanship." Advertising is dealt with as "legitimate" and "illegitimate," and practice may be improperly acquired by undue optimism or "alarmism." A subheading of the last item concerns "near-quackish practices of the medical profession itself, such as unwarranted glandular, electric, and intravenous therapy employed for effect"—the words "for effect" meaning here, no doubt, "to impress." We are not sure whether it is wise to introduce the student to all the seven sins of medicine at once. Perhaps he will do better on the milder pabulum of Dr. Glover, which offers him a lofty ideal, and leaves him, fortified with this, to find out some of the more heinous wickednesses for himself.—*Brit. M. J.*, Dec. 17, 1927.

Giant-celled sarcomas are, rarely, found in organs, and unrelated to bone. Thus, a few cases are recorded as occurring in the mamma and uterus, A. Kahlstorf has now described one in the prostate, associated with the so-called adenomatous hypertrophy.—*Zeitschr. f. Krebsforsch.*, 1927, xxv, 332.

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Special Articles

HEALTH AND HOUSING*

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The health of a community is unquestionably linked up with housing conditions. Where these conditions are faulty, the health of the people suffers. Where housing conditions are good, there will be found the healthiest, happiest, wealthiest and most progressive peoples. The housing problem is a manifold one and intimately deals with the economic, social and hygienic life of the community. It is the purpose of this paper to deal only with the subject as it affects health, with the suitability of dwelling houses and not with their insufficiency.

WHAT IS BAD HOUSING?

Any condition of housing which tends to impair the physical health of the tenants or the community is bad housing. To be more specific, it may be said that housing evils are found in dark rooms, alcove rooms, rooms with no cross ventilation, cellar dwellings, room and land overcrowding, air and light shafts, inadequate water supplies, dark halls, stairways and water closets, lack of food safes, outside privies, filthy lanes, yards and courts, improper methods for disposal of refuse. Bad housing conditions are to be found everywhere. It is not necessary to go to the old and crowded cities of Europe to find slums. Unsatisfactory housing exists in all the cities and towns of Canada, even in the vast, open spaces of the great western plains. Recently there was reported, from a western Canadian town, an instance of ten dwellings fronting on a three-foot alley, with two stores in front and two unsanitary privies at the rear, and all on a twenty-five foot lot! Neither is bad housing confined to any one class of society. It is met with in the hovel of the poor, the cottage of the well-to-do and the mansion of the rich.

The housing problem became serious in the big Canadian cities for the same reason as in the older countries—the rapid increase in population following industrial development. In addition, there was and is the immigration that is going on with greater or lesser degrees of intensity.

It is to be hoped that in this new country, with so small a relative population and so great an area of territory, there will never arise, on so large a scale, the housing evils that mark and disgrace many of the older cities. And yet, if action is not taken in the near future, the housing sores already existing are bound to become aggravated and to extend.

WHAT ARE THE RESULTS OF BAD HOUSING?

Sir George Newman said recently, "there is no subject in the whole range of preventive medicine in which the evidence is so general and incontrovertible as in regard to the ill effects of bad housing upon the human organism."[1]

This has been shown repeatedly by investigations, commissions, reports of health officers and social service agencies.[2]

It is so true that there is no need to labour the proof with any array of statistics.

Where housing conditions are bad there are:—

1. An increased morbidity rate.
2. A lessened expectation of life.
3. An increased general death rate.
4. An increased pulmonary tuberculosis death rate.
5. An increased measles, whooping cough and diphtheria death rate.
6. An increased infantile mortality rate.
7. An increased incidence of and death rate from rickets.
8. An increased incidence of anæmia and rheumatism.
9. An increased incidence of all the common communicable diseases.
10. An increased general deterioration in the health of the people leading to debility and poor physique.

No attempt is here made to assess the value of the different factors that contribute to these conditions. For example, in saying that tuberculosis is more frequently found in places where the dwellings are dark and poorly ventilated, it is appreciated that the primary cause of tuberculosis in these places is an infected person who, carelessly or ignorantly, spreads the disease to those who may come in contact with him.

It is also appreciated that an improvement in housing conditions may not always prevent an increase in tuberculosis, because improved housing conditions must be accompanied by health education.

MAJOR EVILS OF BAD HOUSING

Lack of Fresh Air and Sunshine.—The most serious housing evils are associated with lack of fresh air and sunlight, which are two of the greatest factors in the promotion of health and prevention of disease. Within recent years it has been established that fresh air means moving air of the right temperature and humidity; so that houses in which through and through or cross ventilation can be easily secured are the healthiest.

From their very construction, dark rooms, alcove rooms, rooms without cross ventilation and

* Read at the Canadian Public Health Association Meeting, Nursing Section, Toronto, June, 1927.

rooms lighted by narrow air-shafts cannot be adequately ventilated and, therefore, constitute a serious menace to health.

Of all the natural health-giving agencies, none is more necessary than fresh air; none is cheaper or more easily obtainable. And yet, how difficult it often is to secure fresh air in bedrooms!

Fresh air is one of the greatest agents in building up a strong body and developing a resistance to disease; more especially to the common communicable diseases and particularly to tuberculosis.

During the construction of the Panama Canal, General Gorgas lowered the death rate among the native population that was over-crowded in barracks from 18.4 per 1,000 to 2 per 1,000, simply by removing the workers to small, separate huts.[5]

Fresh air is also one of the greatest curative means at our disposal, but how can it be secured in dark rooms, in alcove rooms even with 80 per cent of the partition removed, and in rooms with windows opening into closed, narrow shafts of stagnant air?

It is perhaps not practical to expect that every individual room in a house should have through and through ventilation, but every room, indirectly through transoms, doors or windows in other rooms, should be susceptible to cross ventilation. If this be not possible, then housing conditions are bad.

Even when satisfactory arrangements are effected for interior ventilation, yet the purpose in view may be defeated if exterior ventilation is interfered with or prevented by adjoining buildings of great height, or through an absence of open spaces around the house.

Room Overcrowding.—Closely associated with fresh air is overcrowding, which exists where there are more than two persons per room of the house.

The evidence here is conclusive that overcrowding favours a higher tuberculosis death rate and a higher death rate of the common communicable diseases, such as measles, whooping cough and diphtheria. What particular factors are involved it is not necessary to discuss, though it seems the most important are close contact and the lack of cool, moving air.

Overcrowding often means life in one room and in one bed. In 1911, in London, England, 13.5 per cent of the people lived in one-room tenements.[3]

Under such conditions of living, it is almost impossible to secure through and through ventilation.

While it is eminently desirable that the floor space of each individual be as great as possible (not less than seventy square feet), it is now known that a less amount is necessary if there is through and through ventilation.

Dark Rooms.—Sunshine containing the health-giving ultra-violet rays should find its way into every room of the dwelling-house, certainly into the living-rooms, bedrooms and kitchens. This is only possible when in every room of the house there are windows of an adequate size, properly placed and arranged to open in all their parts.

It is now scientifically established that sunshine greatly helps to build up, develop and strengthen the body, and to increase the resistance to disease. It prevents and cures rickets, bone tuberculosis and anæmia and, in general, exerts a marked tonic action on mind and body alike.

In dark or alcove rooms, in dark cellars or halls, the marvellous, health-conferring and health-restoring sun, still worshipped by some peoples, the powerful force that kills and attenuates germs, that invigorates the whole body, is excluded to the great disadvantage of the dwellers therein.

Every house should have one room that could be used as a solarium. How often it is impossible to take a child suffering from, or susceptible to tuberculosis to a preventorium, or even to an open space. In which case, how necessary, how urgent it is there should be one room in a house that could be flooded with sunshine and fresh air.

Windows should be properly placed to receive the greatest amount of sunshine. This is more correctly perhaps a question of location. Why should houses be built in rows running east and west, when they could just as easily be constructed on streets running north and south, thus securing the maximum of sunshine?

Even if the conditions just mentioned be fulfilled in the worthy attempt of the individual to secure a healthy home, they may be rendered nugatory if, hard by, a tall apartment is permitted to raise its darkening form.

In New York City, the Equitable Building, which is 493 feet high, at noon on the shortest day of the year throws a shadow one-fifth of a mile in length, completely enveloping an area of 7½ acres.

In England, there is a law of "ancient lights" which prevents this. Why should these tall buildings be permitted in Canada?

Again, outside porches and the winding stairs that disfigure so many of our city homes should not be permitted to shut out the light and air so necessary in crowded areas.

These things would not be possible if a city had good housing laws or if it were properly zoned.

It is worthy of note that a healthy house may be erected and yet, on account of the prodigious amount of smoke produced by neighbouring industrial establishments, the sun may be cut off from that house for several hours a day.

The zoning of a city into home and work dis-

tricts would be effective in dealing with the smoke nuisance.

A few years ago, smoky Manchester received 50 per cent less actinic rays of sunlight than did the people of Didsbury four miles away. Leeds, it is estimated, receives 40 per cent less daylight than its suburbs.[4]

Cellar rooms with more than half their height below the level of the adjoining ground are dark and impossible of ventilation, and are unfit for human habitation. Dark houses favour vermin and are difficult to keep clean.

Every room in every dwelling should have at least one window opening directly upon the street or upon a yard or court of proper dimensions, and the combined glass area of such window should never be less than one-tenth of the floor space.

Inadequate Water Supply.—To-day more than ever is the value of cleanliness recognized as an effective means of maintaining a healthy body. The skin has an important function to perform —the regulation of the body temperature. This cannot be properly done if the body is not kept in a clean, wholesome condition. If the skin is not washed, there is liability to absorption with the production of an inflammatory condition of the lymphatic glands.

Dirt is also an irritant to the skin and may cause chafing, pimples and boils. Pediculosis and typhus have practically disappeared in the presence of bodily cleanliness. Everywhere those engaged in the practice of preventive medicine stress the need for personal cleanliness. How can the hands be washed after leaving the toilet or before eating, how can the teeth or body be kept clean, if there is no water readily available or if there is no bath in the house?

Will these things be done if water has to be carried into a house from a standpipe or pump several blocks away, or up several flights of stairs, or if one water-tap must serve half-a-dozen families? It is questionable if, in these cases, even a sufficient amount of water is provided for drinking purposes. Therefore, as a fundamental condition of good housing, every dwelling should have water laid on, a water closet, a bath and sink and provision for hot water. It is true that dirt (contaminated with human discharges) and disease go hand in hand, and it is equally true that cleanliness and health are to be found together.

Want of Open Spaces Around Houses.—Housing conditions are bad if there is no provision for open spaces around the house. In addition to the necessity for these from the point of view of adequate ventilation, they are also required as a playground for the children in which to exercise and where the older people may sit. Children, if they are to develop strong and healthy bodies, must take exercise in the open air every day of the year and sun-baths in the open. How can a child secure this exercise in the noisy and dusty streets of the city where his life is always in danger? It is better for children to live in apartments with large courts in which to play, rather than in private dwellings or two-family dwellings with no playground except the street.

Lack of Food Stores.—Bad housing neglects to provide a place for the storage of food. There is always a danger of milk and other foods becoming contaminated by flies. These foods should be kept safe and fresh as long as possible, consequently, every house must be provided with a cool, fly-proof, well-ventilated food safe where foods can be kept clean and free from flies, other insects and dust.

Outside Privies.—Outside privies should not be permitted in cities and towns with water carriage systems for the removal of sewage. They can never be kept clean, and are always a danger on account of the fly menace. It must also be noted that one of the effects of outside privies is, often on account of their inconvenient location, they discourage their use and thus favour constipation.

MINOR EVILS OF BAD HOUSING

Among minor housing evils are lanes and streets filthy with accumulations of garbage and manure and other forms of dust-producing dirt.

The objections to these nuisances are that they favour summer diarrhœas in children, furnish breeding places for flies and produce disagreeable, though harmless smells that cause people to close their windows. They also develop dusts that are irritating to the eyes, nose and throat. These evils can be prevented by the paving of streets, alleys and yards, proper storage and collection of garbage, and efficient cleansing of streets.

If the sanitary condition of the house surroundings is unsatisfactory, it precludes the possibility of their use as suitable playgrounds for children.

There is also evidence to show that environment plays a not inconsiderable part in determining physical and mental health. A good environment means increased self-respect, and this buoys up the people, improves the morals, increases the joy of living and promotes the practice of health.

Special mention must be made of one-room houses. In cities they are usually overcrowded and associated with lack of light and ventilation. There is another strong objection to them: within recent years has come the newer knowledge regarding the relationship between certain diseases and diet deficiences. Proper meals will not then be prepared where there are inadequate cooking facilities, where people live, eat and sleep, as well as cook in one room. There must be a kitchen in every home.

GOOD HOUSING

From the foregoing it may, therefore, be said that a healthy house should have:—

1. A dry site, a good aspect; it should be weather-proof and damp-proof.
2. Clean surroundings and not be overcrowded by other houses.
3. Every room of an adequate size, properly ventilated and lighted.
4. No room overcrowding.
5. Proper sanitary appliances, water closet, sink, bath and hot water available.
6. Fly-proof, ventilated food and milk store.
7. Proper heating and lighting arrangement.
8. Proper water-supply and satisfactory washing accommodation.
9. Proper kitchen.
10. Been built under a general town planning scheme.

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THE OSLER CAIRN

On December 28th., the medical profession of Canada and United States were invited to attend the unveiling of a cairn erected to the memory of Sir William Osler by the Hamilton Medical Society. This cairn, charmingly placed at the eastern entry to the town looking over the far famed and beautiful Dundas valley, marks fairly accurately the path which Osler was accustomed to take going down over the hill into the marsh and creek, looking for zoological specimens. The path-way lies across the road from Osler's old home, a little to the east, and it was on this path that members of his family said they could see Osler and W. A. Johnson, his teacher, laden with their nets and specimen cases, starting off for a day's search. The cairn, a square structure of rough rounded stone, bears a tablet inscribed to Osler's memory which reads as follows:

For the strong, rugged and appealing design of the monument we are indebted to the architect, Mr. James Keagey, whose family has lived in the Osler homestead now for many years. It will be difficult for the profession at large to repay the Hamilton Medical Society, Dr. Bertram and the physicians of Wentworth, for their efforts which have resulted in the placing of this splendid monument. The Mayor and council of the town of Dundas are to be complimented and thanked for the wisdom which resulted in their setting aside a small corner of the earth which should forever, as it were, preserve the imprint of the master's foot-steps.

ERECTED BY THE
HAMILTON MEDICAL SOCIETY
TO COMMEMORATE THE LIFE OF
SIR WILLIAM OSLER, BART.
STUDENT, PHILOSOPHER AND PHYSICIAN
WHOSE EARLY STUDIES OF NATURE IN THIS VICINITY,
LAID THE FOUNDATION OF HIS CAREER
He said: "The Master Word is Work"
OCTOBER, 1927

In the presence of a large audience, which included visitors from many points, the monument was presented to the care and keeping of the town of Dundas by the Hamilton Medical Society and was received for the town by Mayor Caldwell.

At 3 o'clock Dr. T. A. Bertram of Dundas, announced the order of proceedings and sketched briefly the steps which had led to the idea of placing a monument upon the trail, along which they knew Osler had so often passed: he commented briefly on the beauty of the monument which represented the completion of the design planned by the architect Mr. Keagey. He then asked Archdeacon MacIntosh of Dundas to give the opening prayer, at the completion of which Dr. Woodhall gave an interesting sketch of the Hamilton Medical Society and its interests in both scientific matters, and in such details of

medical history as were represented by the unveiling of this monument to Sir William Osler in his own home town. Hamilton he said, could justly urge that she had a personal interest in Osler's career since for a short time he had been resident in the old Hamilton Hospital with the late Dr. Charles O'Reilly. Further than this he added, Osler's interest in the Hamilton profession had been both early and lasting, and his intimacy with such old heroes of the profession as Dr. Malloch, Dr. Mullin, Dr. MacDonald and Dr. Wolverton was well known. It was also a matter of history, he said, his affection for a brilliant young mind of the earlier days, Dr. Charles Locke, his companion of old at McGill; there were many of the younger men still living who would always remember the visits which Sir William paid to Hamilton in his busy round of later days. The Hamilton Medical Society he said, had experienced the greatest pleasure in planning and erecting this cairn and were pleased to hand it over to the keeping of the townspeople of Dundas.

Dr. Norman Gwyn unveiled the monument and after thanking the Hamilton Medical Society and the Mayor and Council of Dundas in behalf of Sir William's family and relations, spoke briefly as follows:

"Few of the old greying towns can say as can Dundas, this son of my bosom went forth into the world and so lived his life, that in his death he was mourned by Christian, Hebrew, Mahommedan and Buddhist alike, for wherever the true science of medicine is followed, the name of Osler is respected and revered. As Sir William himself used to say, 'science knows no boundaries' and there is scarcely an altar erected in any country to a victory of medicine over disease, on which there is not some tribute to his memory. As much has already been said and written regarding him, and nearly everyone is familiar with his life as depicted so wonderfully by Dr. Cushing, it will be sufficient perhaps under to-day's circumstances, to visualize Osler as a youth going out past this very spot, to enter into the activities on the way of life; looking closely, we may perhaps visualize his simple equipment, for he travelled light: but beneath his equipment was concealed a key which was to open many doors, the master key of 'work.' We may also sense that remarkable quality of promoting where'er he went, unity, peace and concord: and for a third possession, displayed also everywhere he went was his great love of his fellow men, and his ability to serve faithfully without hope of reward. There was little about him as he passed by, to indicate that his thought would impress the world. Of pomp or panoply about him there was none, and in his association with men, it was never riches or position that weighed with him, but always a man's wish to follow closely the difficult paths of work. In addition to these qualities that we have touched upon and to many that are familiar to his worshippers the world over, there was in Sir William a remarkable ability to face quietly the many questions of life, and a diligence, that through his career, opened every door and enabled him at the last 'to stand before princes.' "

Mayor Caldwell of Dundas on receiving into the care of the town the gift from the Hamilton Medical Society, spoke interestingly on many points which appealed particularly to the townspeople of Dundas and reminded his hearers of Sir William's consideration for his friends of older days. Dundas, he said, would be proud to maintain this splendid monument of her most famous son.

MEDICAL JOURNALISM IN THE UNITED STATES*

BY MORRIS FISHBEIN, M.D.

Editor of the Journal of the American Medical Association and of Hygeia, the Health Journal, Chicago, Ill.

A very interesting address on Medical Journalism was delivered by Dr. Morris Fishbein, Editor of the *Journal of the American Medical Association* in Boston, at a dinner given in the Hotel Somerset to commemorate the one hundredth anniversary of the founding of the *Boston Medical and Surgical Journal*, and the appearance of its first issue.

After the story of its founding, and the various experiences of its several Editorial Boards during its hundred years of existence had been told by members of its past and present staffs, Dr. Fishbein was called upon by the chairman and began his address, of which we present only an abstract, by quoting from the opening remarks of Oliver Wendell Holmes in his address delivered at the opening of the Boston Medical Library on December 3, 1878, a date which also marked the half century of the existence of the *Boston Medical and Surgical Journal.*

"To-day, the quarterly, the monthly, the weekly periodical in its flimsy unsupported dress of paper, and the daily journal, naked as it came from the womb of the press, hold the larger part of the fresh reading we live upon. We must have the latest thought in its latest expression; the page must be newly turned like the morning bannock; the pamphlet must be newly opened like the ante-prandial oyster."

MEDICAL JOURNALISM IN THE PAST

Two hundred years have elapsed since the first medical periodical of any kind appeared to mark progress in medical science. That publication was the *Nouvelles Découvertes sur Toutes les Parties de la Médecine* of Nicolas de Blegny, issued in Paris from 1679 to 1681, translated into German and published at Hamburg in 1680 as *Monatliche neueröffnete Anmerkungen*, and translated into Latin and continued at Geneva as the *Zodiacus medico-gallicus* by Théophile Bonet from 1680 to 1685. Garrison

* Published in full, *New England Journal of Medicine*, Feb., 1928, cxcviii, 26.

says of the pioneer medical journalist that he was also the author of a series of satirical sketches of his contemporaries which, published as the "Mercure savant" in 1684, became the original of subsequent "city directories." Medicine may well be proud of the fact that the publisher of the first newspaper of France was also a physician. Théophraste Renaudot was the originator of the *Gazette de France*, issued in 1631, perhaps the fifth or sixth newspaper in every sense of the word to be published in the world. Like a true-hearted physician he founded his paper for the good of mankind, principally to support his hospital plans, his dispensaries, and other charities. He was also the originator of pawn shops and intelligence offices.

The first English medical journal was the *Medicina curiosa*, which appeared from June 17 to October 23, 1684. Other medical periodical publications followed promptly. Hufeland was editor of four. During the eighteenth century some eighty medical periodicals were published, of which fifty-five were German, three French, four English, and one American. "At the commencement of the Revolutionary War," according to John Shaw Billings, "we had one medical book by an American author, three reprints and about twenty pamphlets." After the Revolution was effected the first medical journal published in the United States was a quarterly, the *New York Medical Repository*, edited by Elihu Hubbard Smith, Edward Miller and Samuel L. Mitchell, all of New York. It survived a precarious existence through twenty-three volumes. In 1804 the *Philadelphia Medical Museum* appeared and two years later the *Philadelphia Medical and Physical Journal*. Then New York countered with the *Medical and Philosophical Register* in 1810, and Philadelphia came forward with the *Eclectic Repository* in 1811. In 1812 the *New England Journal of Medicine and Surgery* was established in Boston, but after sixteen years was merged into the *Boston Medical and Surgical Journal*. However, the *Boston Medical and Surgical Journal* was not the first weekly publication. That honour goes to the *Medical Intelligencer*, established in 1823 by Dr. J. V. C. Smith of Boston. Meanwhile Thomas Wakley founded the *London Lancet* on October 5, 1823, and medical publishing became significant as journalism.

In "The Life and Times of Thomas Wakley" by S. Squire Sprigge, appears the story of the courageous, satirical, commanding personality who first used a medical periodical to accomplish great medical and public reforms. Wakley was twenty-eight years old when he established the *Lancet*. He had had no literary experience, but he seems to have known the news interest that lies in conflict. In the preface to his first number he announced definitely the battles in which he planned to engage. His first interest was to bring medicine out of the veil of mystery in which it had so long resided into the public light.

"We hope the age of 'Mental Delusion' ha passed, and that mystery and concealment will no longer be encouraged. Indeed, we trust that mystery and ignorance will shortly be considered synonymous. Ceremonies and signs have now lost their charms, hieroglyphics and gilded serpents their power to deceive. But for these it would be impossible to imagine how it happened that medical and dietetical knowledge, of all other the most calculated to benefit Man, should have been by him the most neglected. He studies with the greatest attention and assiduity the constitutions of his horses and dogs and learns all their peculiarities; whilst of the nature of his own he is totally uninformed and equally unskilled as regards his infant offspring. Yet a little reflection and application would enable him to avert from himself and family half the constitutional disorders which affect society; and in addition to these advantages, his acquirements in medical learning would furnish him with a test whereby he could detect and expose the impositions of ignorant practitioners."

The first number of the *Lancet* had thirty-six pages. In its arrangement and contents it has been a model for weekly medical journals. Beginning with a lecture by Astley Cooper, it proceeded with case reports, a polemic, two editorials, abstracts from other periodicals, an article on "The Composition of Quack Medicines" with an analysis of Dalby's Carminative, Daffy's Elixir, and Spelbury's Antiscorbutic Drops; then some quotations from the public press, and an open letter from Charles Lamb to Robert Southey, taken from the *London Magazine*. For the first ten years of its existence its pages were a duelling ground for battles between its editor and the reactionary leaders of medicine.

As might have been expected, this noisy newcomer in the field of medical journalism aroused resentment in the three contemporary medical periodicals already appearing in London. The various editors began to comment. One called the publication of lectures by Wakley "a monstrous breach of professional etiquette." Wakley retaliated by giving caustic names to his opponents. One, on account of its yellow cover was termed a "yellow fungus."

MEDICAL JOURNALISM IN AMERICA

In this country Dr. John Ware, born in Hingham, Massachusetts, in 1795, graduated from Harvard Medical School in 1816. He with Dr. Walter Channing edited from 1824 to 1827 the *New England Journal of Medicine and Surgery*, and when the *Boston Medical and Surgical Journal* was founded in 1828, served for a year as its first editor and copied in its early numbers the makeup and composition of the *London Lancet*.

In 1848 in the first volume of Transactions of the American Medical Association appears a report of a committee on medical literature, headed by Dr. Oliver Wendell Holmes. Other members were Drs. Enoch Hale, G. C. Shattuck,

Jr., Daniel Drake, John Bell, Austin Flint and W. Seldon.

After deprecating the number of medical journals which then existed which in the opinion of the committee was due chiefly to their value as advertising mediums, their report went on to deprecate above all else the fact that the American literature of the day was largely British. "The fairest fruits of British genius and research are shaken into the lap of the American student, and the great danger seems to be that in place of the genuine culture of our own fields, the creative energy of the country shall manifest itself in generating a race of curculios to revel in voracious indolence upon the products of a foreign soil"

The committee in its report recognized the parallelism that exists between conditions in England and in this country, but recognized also definite differences in the American constitution, and the presence of diseases differing from those of the old world.

"Here is the true field for the American medical intellect; not to set English portraits of disease in American frames; but to co-operate with that fast gathering band of students who in other departments of science are studying what nature has done with her American elements, and teach us what disease is here, how it is generated, and what kindly antidotes have been sown in the same furrows with its fatal seeds."

From the tenor of the report and from other incidents, such as the fact that the famous essay by Oliver Wendell Holmes on "The Contagiousness of Puerperal Fever" had been printed in 1843 in a medical journal that lasted but a single year, it may be taken for granted that the distinguished committee was averse to medical journalism of the type established by Wakley, and quite successfully followed by the *Boston Medical and Surgical Journal*. They strongly objected to personal medical journalism.

An editor in their view is responsible that nothing shall be admitted into his pages the essential character of which is hostile and inflammatory, on the same principle that he is bound to be courteous in his common intercourse.

In 1853, the head of the committee on medical literature of the American Medical Association was that distinguished medical organizer and leader, Dr. N. S. Davis. During the year twenty-eight medical periodicals published had given 15,872 pages to medical literature, of which about half were original articles. The remainder consisted of reviews, editorials and news. Apparently Davis had looked through all of these publications to find material of importance. Much of it he considered was published merely to afford the author the pleasure of seeing his name in print. He emphasized his belief that many of the periodicals were published primarily to support commercial medical schools.

With all due credit to modern writers however, the general style of the material appearing in 1853 must be regarded as better than that of many manuscripts received by publications to-day. Authors wrote with care, philosophy, however, occupied pages in contrast to the brief space devoted to clinical observation.

While the committee stated that they were not prepared to propose any special mode of operation for encouraging and maintaining a national literature they considered that *such a desirable object was best promoted by elevating the standard of education; by the stern exclusion of unworthy articles from medical journals; and by introducing such a tone of general scholarship* and scientific cultivation that the finer class of intellects may be drawn towards the rank of the medical profession.

The *Boston Medical and Surgical Journal* for the first half century of its existence included in its pages many notable contributions to medical literature and its distingished list of Editors included such names as John Collins Warren, George B. Shattuck, David Cheever, Frank W Draper, Francis Minot and J. V. C Smith. Its volumes for 1846 and 1847 contain many interesting papers on the early history of anæsthesia and the introduction of ether.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION AND DR. SIMMONS

In 1899 there were nine weekly journals in the United States. They were part of a total of 230 periodicals issued in this country. Until then the *Boston Medical and Surgical Journal* had been the peer of any other medical journal in this country, if not the leader of all. Then came upon the scene an editor who was to be the Thomas Wakley of American medical jounnalism; a man who for twenty-five years devoted himself whole-heartedly to the promotion of the work of the American Medical Association—Dr. George Henry Simmons. The main objects to which Dr. Simmons devoted himself were: (1) The establishing of state examining bodies to act as licensing boards in place of the proprietary diploma-granting medical schools; (2) the improvement of medical education by the raising of preliminary requirements and the lengthening of the course, and (3) the regulation of pharmaceutical matters and of patent and proprietary medicines. For fifty years solemn committees had met annually and adopted resolutions on these subjects, but the medical profession had failed to speak as one voice in their support. After the reorganization of the American Medical Association in the first years of the present century, the Association began to speak powerfully and under the leadership of Doctor Simmons, the *Journal of the American Medical Association* developed a circulation which made it surpass in distribution any weekly medical publication of the world.

In 1900, about twenty-five per cent of the 230 medical periodicals were devoted largely to the publication of scientific articles; the remainder

were medical news and advertising sheets devoted primarily to the making of money for their publishers either directly, or indirectly through the promotion of medical schools, proprietary medicines or book publishing ventures.

When Dr. Oliver Wendell Holmes spoke at the dedication of the Boston Medical Library in 1878, he deprecated the increasing number of medical publications. In 1913, the world's literature included 1,654 periodicals, of which 630 were American, 641 German, 268 French, 152 British, 75 Italian and 29 Spanish. From 1916 to 1917 there were 1,895 medical periodicals. Then in 1920, because of the World War, the number decreased to 1,240. This year there are again approximately 1,800 periodicals of significance, issuing 17,735 individual issues per year.

As he surveyed the literature of his day, *Oliver Wendell Holmes considered good indexing as the supreme need of medical literature.* Indeed, he recommended the formation of an indexing society in order to undertake this work. To-day that need is just as great. The indexing of the 1,800 periodicals now available required the making of 140,000 card references for the Quarterly Cumulative Index Medicus. It would have delighted the soul of Oliver Wendell Holmes to witness this tremendous accomplishment. He would certainly have been a subscriber. *Without it, the vast majority of the periodicals published not only in the United States but in the whole world to-day would be ephemeral, after a few years well-nigh useless.* Libraries could not be encumbered with vast collections of bound volumes of periodicals, idle receptacles for dust. An index makes them continuously useful.

The *Boston Medical and Surgical Journal* has always been a well-edited publication. Presumably this was due to the fact that its editor selected largely such material as might be offered by authors of sufficient education to write grammatical, rhetorical and intelligible English. The early committees of the American Medical Association recognized, however, that in a country in which at least fifty per cent of the physicians were not especially well educated, occasional scientific observations might arise which were of importance for scientific record but which their authors would be unable to put into intelligible English diction.

One of the significant features of the publications of the American Medical Association, inaugurated by Dr. George Henry Simmons, was the establishment of a corps of manuscript editors, and of a style for the American Medical Association press. As might have been expected, the semi-educated physicians whose contributions were thereby changed to excellent English writing were exceedingly grateful. After all, *it is the duty of an editor to edit, not for his contributors but for his readers.*

When Thomas Wakley put the London *Lancet* into competition with the medical periodicals of his day, they either gave up the ghost or improved themselves to meet his standards. When *The Journal of the American Medical Association,* with the powerful support of the great organization behind it, entered the field of medical journalism under the leadership of Doctor Simmons, it proved a stimulus to medical periodical literature in this country. Many periodicals fell by the wayside or were supplanted by others of a higher type. A few unfortunately are still promoted as they may, perhaps, always be to attract the shekels of the unwary physician by appeals to selfishness, and the baser emotions to which doctors as well as other men occasionally succumb.

GUIDING PRINCIPLES

In conclusion may I lay down a brief series of principles to guide editors, contributors and readers in this great galaxy of medical journals.

It is the duty of an editor: (1) to judge impartially in the selection of material for publication; (2) to consider the interest of the reader as paramount; (3) to maintain the high standard for medicine that it has had in the past; (4) to fight ignorance, quackery and fraud, not only by a campaign of silence but openly and continuously; (5) to refrain from personal laudation, and to publish nothing that will aid the individual seeker of the limelight in his ambitions; (6) *to be guided by good English style and diction but to avoid fancy writing and rhetorical bouquets;* (7) to be first with the most important articles and scientific news; (8) to be interesting —above all, to be interesting.

It is the *duty of a contributor:* (1) to be brief; (2) to be as careful in literary publication as in surgical operation; (3) to publish only when you have something new to say or something old to say in a new way; (4) to contribute only to those publications in which the products of your brain will be associated permanently with commercial matter equally clean.; (5) to provide an adequate summary and conclusions; (6) to select a title that expresses the meaning of your article; (7) to make citations only to medical literature that has actually been consulted; (8) to eliminate carefully unnecessary charts, tables and illustrations; (9) to be as clean in writing and revising as in the hospital clinic; (10) to be interesting.

It is the duty of the reader: (1) to be interested; (2) to support sound publications by subscription; (3) to avoid derogatory criticism unless all of the facts are apparent; (4) to purchase approved products of merit advertised in sound publications; (5) to suggest improvement when the need is apparent.

The time has passed when any weekly medical periodical can long survive or gain the support of the medical profession if it be devoted to the personal ambitions of promoters or editors; or to policies that are reactionary, and to interests that are without regard for honesty and the interests of the public. The principles and ethics of medical journalism are as sincere and certain as those of medicine itself.

XUM

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Men and Books

NOTES ON THE MEDICAL HISTORY OF KINGSTON

BY THOMAS GIBSON, M.A., M.B., C.M. (ED.)

Douglas Professor of Pharmacology and Therapeutics, Queen's University Kingston, Ont.

Part II. The Early Professors

Dr. James Sampson was the son of a rector in County Armagh, Ireland, and was born there in 1790. He took his medical apprenticeship and college training in Trinity College, Dublin, and at Middlesex Hospital, London, where he was house surgeon. In 1811, he entered the army as assistant surgeon to the 88th Connaught Rangers. In 1812, he was in Canada with the 104th Regiment, and was present at the attack upon Sackett's Harbour. We find him later at Kingston, taking care of the wounded. Subsequently, he accompanied a force which went west as far as Penetanguishene. His commanding officer having fallen sick, Sampson organized and led a night attack upon two armed American vessels at anchor in Lake Huron. This adventure was successfully accomplished without the loss of a man.

Somewhere between 1817 and 1820, he settled in Kingston as a half-pay officer, and began to build up a practice. Here he lived nearly fifty years, and proved one of Kingston's ablest and most liberal minded citizens. He was thrice mayor; for some years a magistrate, and for twenty-six years surgeon to the penitentiary from the year of its foundation, besides doing much to improve the equipment and management of the General Hospital, of which he was the first appointed physician in 1835. He succeeded Dr. James Macaulay as a member of the Medical Board of Upper Canada, whose chief duties were to examine candidates for license to practice in the province, and to examine those who applied for pensions in the army and navy.

As dean of the profession when Queen's College first organized its medical faculty, Sampson was asked, in June, 1855, to be Professor of Clinical Medicine and Clinical Surgery, and to act as President of the Faculty. From these positions he resigned in November, 1860.*

Dr. John Robinson Dickson was also an Ulster man, born at Dungannon, County Tyrone November 15th, 1819. He studied in Belfast, and took a medical degree in Glasgow. In 1838, at the age of nineteen, he came with his family to Canada. He took further post graduate study at the University of the City of New York, and is said to have been the first M.D. on its roll of graduates. Thereafter he settled in practice at Kingston. He served on the General Hospital staff from 1846 to 1854.

In 1854 he was one of the leading promoters of the foundation of a medical faculty in affiliation with Queen's College, and was its first Professor of Surgery. In 1862 he became surgeon to the penitentiary, and in December, 1868, he was appointed medical superintendent of Rockwood Asylum, where he introduced occupational therapy and many other valuable reforms. He died on Wolfe Island in his son's home, in November, 1882, full of years and multiplied honours. He was an able surgeon, a farsighted member of our profession, and a citizen full of public spirit. He was, perhaps, the first to advocate publicly one central examination to admit to the practice of medicine throughout Canada.

A genius of quite another type was *Dr. John Stewart*, a native of Perthshire, and an L.R.C.S. of Edinburgh. He came to Canada in the thirties, and in 1839 was licensed to practice by the College of Physicians and Surgeons of Upper Canada. When he walked abroad in Kingston he sported the Kilmarnock bonnet and the Stewart tartan plaid, alike in summer and winter, with a cairngorm brooch on his shoulder. This was symbolic of a self-assertive, combative temperament, which brought much trouble to himself, and to others whom he was fond of haling to the courts, where he conducted his own cases and fought things out to the bitter end. He was, however, warm-hearted, had a benevolent side to his disposition, and greatly distinguished himself by his devoted care to the victims of the typhus epidemic brought in by emigrants in 1847. It is said that he even performed the actual service of a sexton in committing stricken bodies to their last resting place under the mound, crowned with a sculptured angel, which is shown to every visitor to the precincts of the General Hospital.

Of the "acts which he did" during his incursions into civic and parliamentary politics; of the duel which he fought with one Steers*, an equally hot-headed Celt from the Irish side of St. George's

* See Minutes of Board of Trustees.

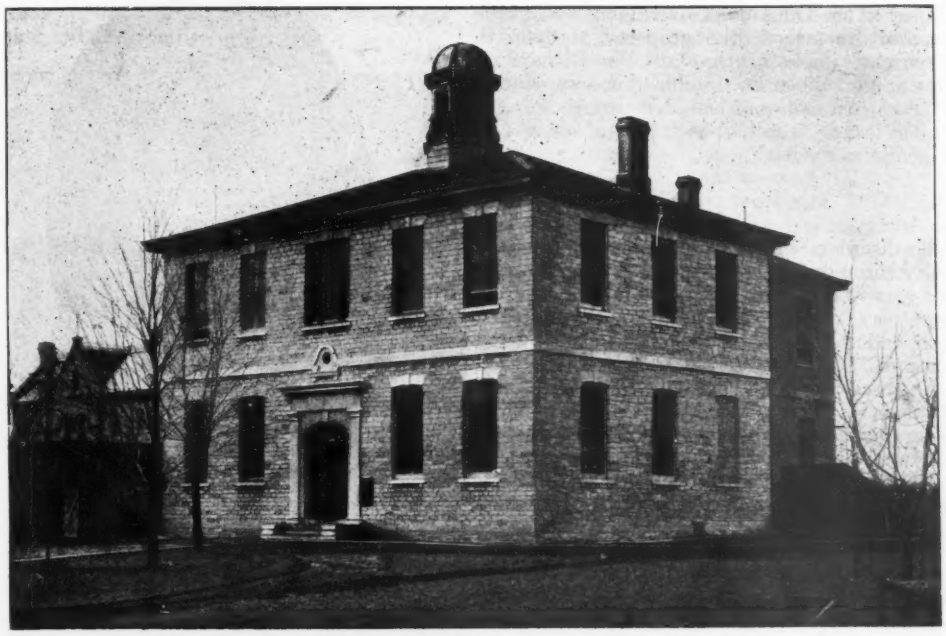
* Steers' second by the way, was who but that rising young barrister, John A. Macdonald, and the weapons were a pair of Dr. Sampson's old navy pistols.

Channel; of the "Argus" newspaper which he edited in order to ventilate his opinions of all and sundry his opponents, it were long to speak. Stewart had studied anatomy under the brilliant Dr. Knox in Edinburgh, and became the first Professor of Anatomy in the young Medical Faculty of Queen's. In the early sixties disagreement arose between him and several other members of the staff, which resulted in mutual accusations before the Board of Trustees. A series of charges of indiscreet behaviour was brought against Stewart. The first seven of these he very naively admitted, but as for the others he "passed over them in silence." He was suspended from office permanently, but held on as long as possible to the books and apparatus belonging to Queen's College which were in his possession. This was the year in which Stewart began to edit and publish a new series of his weekly newspaper "the Argus" with this promising motto at the head of its front page: "Be just and fear not."

Stewart was, take him for all in all, one of the most picturesque citizens of Kingston of his day, and there must have been something toward at all times in his neighbourhood. He is said to have made a good end at the last, under the discipline of age, infirmities, and, it must be feared, straitened circumstances. He died in 1891, the same year as his much greater townsman, Sir John A. Macdonald.

Dr. Fife Fowler was born in 1823 in the fair town of Elgin, Scotland. He was a pupil in the famous grammar school of Aberdeen, spent two years in King's College in Arts, and was apprenticed for four years to Professor Pirie of Marischal College, Aberdeen, whence he graduated M.B. in 1843. Later, he proceeded to the degree of M.D. in his College, and shortly afterwards obtained the license of the Royal College of Surgeons in Edinburgh. In the Spring of 1854 he came to Quebec as surgeon of an emigrant ship, and then pushed up the country to Kingston, where he settled, and was at once added to the staff of the Medical Faculty as teacher of Materia Medica.

Later, he was succeeded by Dr. Horatio Yates who became Dean and Professor of Medicine, serving the Faculty for forty-six years in all. He was a man of good abilities and solid judgment, urbane and honourable in all professional relations; To the student he fulfilled the same kindly role of a fatherly friend as did the revered Dr. Williamson in the Faculty of Arts.



"Old Medical Building," erected 1858

Dr. Horatio Yates was born in New York State in 1821, and came to Kingston to live with an uncle in 1833. At the age of seventeen, he was apprenticed to Dr. Sampson, and later took some studies in Philadelphia, where he graduated in 1842. After a year in St. George's Hospital, London, he returned to Kingston and quickly built up a large practice. In the year 1854, he devoted himself with others to the re-organization of the General Hospital, which had been sadly neglected for some time through lack of funds. The same year he accepted the lecturership in Medicine in the new medical faculty at Queen's. Yates was a scholar and a man of culture, and filled a large place in the medical, social and civic life of his time.

Of all the group, the figure of *Dr. John P. Litchfield* is the most shadowy. He is said to have been Inspector of Hospitals in South Australia in the early forties; then Superintendent of the Walker Private Asylum, presumably in Britain, from 1845. The date of his arrival in Kingston I have not yet found out. He was of sufficient reputation to be asked to succeed Dr. Hayward as a teacher of midwifery when professors were first appointed in 1855. In the same year, on March 1st, he was appointed physician to the criminal insane patients at Rockwood. This post he held till his death in December, 1868. He resigned his professorship of obstetrics in October, 1860, to be succeeded by Dr. Michael Lavell.

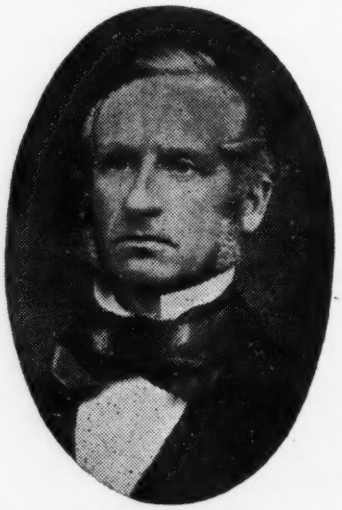
The criminal insane were confined in the basement of one of the penitentiary buildings until 1854, when the Dominion Government bought the estate of Rockwood, the property of John S. Cartwright, uncle of the late Sir Richard J. Cartwright. When Dr. Litchfield was appointed, Dr. Sampson relinquished his charge of the criminal insane, who had been part of his care in the penitentiary itself.

THE ROYAL COLLEGE

The disorders which arose among the medical faculty through the vagaries of Dr. John Stewart were symptomatic of a serious lowering of its general well-being. The number of students, which had steadily risen to ninety-seven by the session of 1860-61, fell off from year to year till in the session of 1865-66 there were but sixty. The dissatisfaction among the medical staff was further increased by the enactment by the trustees of a new set of statutes for the general government of the various faculties of Queen's in 1862-63. Professor Dickson resigned the chair of surgery in 1864 in protest, and was allowed to go, after ten years' valuable service, without a word of thanks or appreciation from the trustees.

The situation in the College was further aggravated by a fierce feud between Professors George and Weir, by the death of Principal Leitch, and by the coming of a new principal. The original doubt on the part of an influential group of trustees, of the wisdom of maintaining a medical faculty, re-asserted itself, and grants for medical purposes were grudged more than ever. In 1866 the medical group felt that something must be done if a medical faculty were to continue to exist in Kingston.

The majority of the medical staff, led by Dr. Dickson, finally decided to cease to function as a teaching faculty of Queen's, and to secure an act incorporating them as a College of Physicians and Surgeons at Kingston, with independent powers. The Hon. John A. Macdonald saw it through the Legislature, and it passed its second reading in the House on July 19th, 1866. On the outside of the schedule of the act it is described as "An Act to Incorporate the *Queen's* College of Physicians and Surgeons, Kingston." Such was the name first proposed by the medical staff. But when this was referred to the Board of Trustees, they objected, on the ground that there was already a Queen's College at Kingston with a charter from Her Majesty. It was but a step to change the name from "Queen's" to "Royal." Dr. Dickson is authority for the statement that this style was suggested by the Hon. Sir John A. Macdonald, and somehow it seems quite like a thing he might do. In the body of the schedule of the Act, it is described as an Act to Incorporate the "Royal" College of Physicians and Surgeons of Kingston. The persons incorporated were: Doctors Dickson, Mair, Fowler, Lavell, Kennedy, MacLean, Sullivan and Richard A. Reeve, and their successors. Dickson and Fowler alone



Dr. John Stewart

remain as representatives of the first professors. Section 5 conferred the right to grant certificates of qualification, or diplomas, after due examination, which should entitle students obtaining them to be registered as practitioners.

Within a few years, the privilege of presenting themselves for examination before the Royal Colleges of Surgeons of London and of Edinburgh, was secured for the students of the Royal College at Kingston.

Section 7 gave the Royal College the right to affiliate with any university, so that from it the students of the Royal College might obtain degrees in medicine, surgery and midwifery, qualifying them to practice. Queen's, and later Trinity, were the degree-conferring institutions with which the College was affiliated.

Section 7, therefore, re-established the old arrangement between the Medical Faculty and Queen's College with regard to the granting of medical degrees. But, in addition to this, Section 5 gave the Royal College the right to make licentiates qualified to practice in Canada, and entitled to go up for examination in Britain, thus opening a back door into the profession in the

States through the diploma of licentiate, and in Canada through the taking of such a diploma, for instance, as the L.S.A. of London, in the days when there was reciprocity between British and Canadian licences. In later years, the mere diploma of the Royal College was not acknowledged in Canada as conveying the right to practice. This, of course, was the undesirable feature in the constitution of the Royal College.

The new arrangement was announced to the Fall Convocation of 1866, by Principal Snodgrass in a very cryptic paragraph, and by the militant Dr. John R. Dickson in a trenchant address very critical of the trustees. Dickson at the same time announced that it was proposed to establish the advanced degree of Fellowship of the College of Physicians and Surgeons, as an acknowledgement of higher scholarship and skill among Canadian practitioners of at least five years' standing.

Dr. J. C. Connell, appointed Dean of Medicine, 1903

By the time the reunion with Queen's College took place, in 1892, twenty-nine fellows had been created. Thirteen of these were, or had been, on the teaching faculty of the Royal College, and the rest were quite a "mob lot," curiously distributed. Kingston, Jamaica; Waverley, New South Wales; Sacramento, Cal.; Queenstown, Ireland, all boasted of possessing a Fellow of the Royal College of Physicians and Surgeons of Kingston, the last named being a member of the British House of Commons.

A short-lived increase in the number of students followed the new departure, but in 1868-69 the exodus began again. In that session there were fifty-four medical students, thirty-five in 1871-72, and thirty-three in 1874-75. The reunion of the Presbyterian Churches in 1875, and the coming of Principal G. M. Grant in 1877, brought new life to Queen's in all its departments, and the number of medical students began to increase slowly once more. By the year 1892, their numbers had grown to one hundred and forty-five, and the whole student body including medicals, to four hundred and fifty-four.

MEDICAL WOMEN AT QUEEN'S

We may digress here, for the moment, to give a brief account of the training of medical women at Queen's. On 28th May, 1879, the Misses Augusta Stowe and Elizabeth Smith passed a matriculation examination before the Council of the College of Physicians and Surgeons of Ontario. These were the pioneer women students to enter for a complete course of medical study in Canada. One of their examiners for matriculation was Mr., now Dr. A. P. Knight, of Kingston. He informed one of these ladies that Queen's had recently decided that the advantages of the university course would henceforth be thrown open to women (session 1878-79), and that possibly the Medical Faculty might be willing to act upon this resolution.

Correspondence with Dr. Lavell, Professor of Obstetrics and Gynæcology, resulted in an announcement being made that the Faculty of the Royal College of Physicians and Surgeons, Kingston, would establish a course of lectures for women only. This course would be given during the spring and summer months, and would run from April till September, the same as that given during the winter session to the men; it would qualify after examination for the degree of M.D. The first session began April 2nd, 1880. Only four students presented themselves on that date. The teaching staff consisted of the following: Professor N. F. Dupuis of the Arts-Science group, and Doctors Fowler, Oliver and T. R. Dupuis, of the Royal College of Physicians and Surgeons, Kingston.

In April, 1881, only two women students appeared to undertake the new session, and it was arranged that the attempt would be made somehow to have them take their studies along with the men students in October, on a partly co-educational basis. This plan was carried out with fair success during the session 1881-82. During the third session (1882-83), however, a group of students, and two of the professors, set themselves the task of driving the women out by grossly offensive methods. The women appealed to the Faculty, and the male students delivered an ultimatum to the same body, threatening to desert to Trinity unless the women were removed. In this strait, the Faculty promised to carry the existing women students through their course, in separate classes, to graduation, and in future to accept no other women students.

Great sympathy was expressed in the general

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provincial press for the cause of the women, and shortly afterwards the Legislature passed a resolution that women should be admitted as students of the provincial University itself. On June 8th, 1883, fostered largely by Dr. A. P. Knight, an influential gathering of citizens (which included Principal Grant, Sir R. J. Cartwright, Mr. H. Folger, Mr. Gildersleeve, and Hon. G. A. Kirkpatrick) resolved to open a separate school for women medicals. Subscriptions amounting to $1,500.00, to be renewed annually for five years, were procured within a month. Of the Board of Trustees appointed, Sir R. J. Cartwright was Chairman, and Hon. William Harty, Vice-Chairman. The members of the Faculty were: Doctors Lavell, Sullivan, Oliver, T. M. Fenwick, Saunders, Phelan and Garrett. Nine students went through the session of 1883-84 and in the spring the first women graduates of Queen's were capped: Misses Fitzgerald and Fowler, (B.A.); and Mrs. McGillivray and Misses Beatty and Smith, (M.D.). These were the first women graduates of any Canadian University.

Mrs. Alice McGillivray was on the staff of the Women's College as Lecturer in Anatomy the following session, and in 1887 Dr. Elizabeth Shortt (as Miss Smith had then become) joined the staff as Lecturer on Jurisprudence and Sanitary Science. Two other women, Dr. Marion Livingstone and Dr. Isobel McConville, were made teachers of materia medica and anatomy, respectively.

In 1890 the Women's College moved from the rooms in the civic building, which had been loaned by the City Council, to the Wilson homestead, still standing on Union Street, which had been purchased for their use. Twenty-five was the maximum number of women students in attendance during any one session, and each year there was a graduating class.

After ten years of fairly successful existence, certainly full of sincere hard work on the part of its supporters, teachers, and students, the Kingston Women's College closed its doors. The Toronto Women's Medical College, which came into existence in 1883, had grown into a flourishing concern, and it was felt to be foolish to continue the much smaller school in Kingston. The existing undergraduates withdrew to Toronto and completed their studies there, returning to graduate from their Alma Mater. The Toronto School in its turn closed its doors in 1906, when the fight for co-education in medicine had been finally and completely won. Thirty-three students graduated from the Women's Medical College at Kingston. Of these at least four took up foreign service in Central India, in a missionary capacity.

THE ROYAL COLLEGE—*Continued*

About the year 1892 the medical school in charge of the Royal College was at a very low ebb. It had been supporting itself as a small group by students' fees, and by the prices of licentiate and fellowship diplomas, with little development of plant or of personnel, and with the inevitable growth of dead wood in a stagnant faculty. Financial independence meant also freedom from the stimulating criticism of the group of trustees of Queen's.

Principal Grant had been acutely conscious of this, and at last decided to try to let loose a fresh breeze upon the untroubled waters. His proposition was that the Royal College should, as a teaching body, cease to function, and should become the Medical Faculty in affiliation with Queen's University. They must still finance themselves in general, but Queen's would establish a chair of Biology and Animal Physiology and would pay the professor. The fees for this course, however, would come to the Treasurer of Queen's. This reform was shortly introduced, though opposed by some of the old guard of the Royal College.

The Royal College for some years longer continued to furnish diplomas of Licentiate or Fellow to those who thought the letters worth the twenty or fifty dollars demanded, respectively, for the same.

The last note of these mutual interchanges occurs in the minute book of the Corporation in 1902. The last appointment to fill a vacancy created by death in the ranks of the Corporation of the College was made on November 6th, 1902. There is now no survivor living.

Without unduly straining the canons of charitable judgment, one may say that the Royal College appears to have been a form of institution which grew out of a temporary failure to realize the normal relationship which should have existed between Queen's and her affiliated medical faculty. This, no doubt, involves blame to both parties; perhaps more to the Board of Trustees of Queen's. There were elements of insincerity and unwholesomeness in the conception of the Corporation, exemplified chiefly in its traffic in diplomas. The Calendar of 1891-92 records to date twenty-seven Fellowships and ninety-two Licentiates granted. The minute book of the Corporation records only two Fellowships and eight Licentiates in the few remaining entries down to 1902. The total income from these sources amounted to $3,450.00.

MEDICAL FACULTY—LATER DEVELOPMENTS

Principal Grant's next move was to urge the establishment of a Chair of Pathology. The man for this post was ready to hand, Dr. W. T. Connell, who graduated from Queen's in 1894, went at once over to England to study, and while there accepted the offer to teach Pathology at Queen's, promising to give full-time service for three years. Principal Grant died in 1902; Principal Gordon succeeded, and Dr. J. C. Connell became Dean of Medicine in 1903, in succession to Dean Fowler.

Led by the new Dean, the Medical Faculty began a steady system of urging upon the Governors of Queen's to take further financial responsibility for the Medical Faculty. Progress in this

campaign was slow, and the Faculty, therefore, sought help through direct approach to members of the Ontario Government. During the session of 1903-04, a Provincial Government grant of $500.00 was voted in aid of the Public Health work of the eastern part of the Province, which was being done in the new laboratory, now most efficiently directed by Dr. W. T. Connell. The value of this work and its necessity had become at once evident. Many problems belonging more to the farmer's occupation than directly to public health work were solved, *e.g.*, the determination of the bacterial causes of deterioration in cheese. Because of the value of the work done by the pathological and public health departments, and the promptness with which reports were forwarded to those waiting for them, the worthiness of Queen's Medical Faculty to receive government grants was established.

In 1906 $50,000.00 was given for the new medical building, ostensibly to provide adequate room for the pathological and public health departments. In 1913, when the University finally decided to absorb the Faculty as an integral part of its machinery, and took over complete financial responsibility for it, it found that it also took over an annual government grant of $11,000.00. At the same time the proprietary financial interest of the old Royal College, which had passed to the Medical Faculty as affiliated with Queen's came to an end.

Chemistry, Physics and Biology are now taught by the science professors in these branches, who are whole-time men. Of the teachers of essentially medical studies, whole-time men occupy the Chairs of Anatomy, Physiology, Pathology, Bacteriology and Pharmacology and Therapeutics. Dr. W. T. Connell is director of Clinical Teaching in Medicine, with private practice as an internist, and Dr. L. J. Austin holds a corresponding post at the head of the Surgical Department. These last two are the most highly paid members of the staff. The full tale of part-time professors, associate professors, and junior lecturers, several of whom are whole-time men, now numbers thirty-two. The student body numbers about three hundred—nominally, fifty in each year. The equipment for teaching purposes in all scientific branches may now be said to be sufficiently complete. The development of hospital and clinical facilities in recent years for a city the size of Kingston, has been phenomenal, and speaks volumes for the liberality of her citizens as well as of the Government of Ontario.

It may be said with truth that the Gaelic slogan so often thoughtlessly shouted from the bleachers "cha gheil, cha gheil, cha gheil"—which being interpreted means "Never give in"—has been a true word as expressive of the basic urge behind the little College since her earliest days in the frame house on Colborne Street, in 1841.

Amidst the general growth of the whole University the Medical Faculty has played its strenuous part, with periods of existence that were picturesque rather than formative, as is the case in all histories. From the time when the hand of George Munro Grant touched it it has moved on from strength to strength, so that its students leave its halls fitted to hold their own honourably among their peers.

THE FUTURE OF CHIROPRAXIS

We quote the following from the *Pittsburgh Medical Bulletin*. In addressing the meeting of 500 chiropractors and sympathizers in Philadelphia on February 26th, Mr. B. J. Palmer, "the daddy of chiropractors," said:—

> "Fully 80 per cent of the chiropractors in Pennsylvania are practicing medicine, not chiropractic. That is a sorry fact, gentlemen—we are practicing medicine. During the last year, I have been in every state in the Union, and this condition exists throughout. My ideals concerning chiropractic were shattered. Chiropractic is doomed. You have drifted so far from the basic principles of chiropractic that you have lost your identity and brought the basic science bill upon your heads. Twenty-eight chiropractic schools have closed recently, and many others will follow. The supreme courts in seven states have handed down legal injunctions during the last eighteen months, whereby these states are lost forever to chiropractic. I warned Ohio not to compromise. They tried to pass a bill engrossing medical principles and practices. I predicted its failure. It lost by 250,000 votes. There has been $250,000 of chiropractic money spent in California in the last year. You cannot defeat the ends of science. The basic science bills are the buck shot which we deserve for trespassing. When chiropractors preach and practice and try to become physicians, then it is justifiable for the medical men to educate the chiropractor. Now beat that argument if you can. That is why we are losing right along. This will probably be the last time you will see me as a chiropractor, as I do not propose to lose my good money in fighting against sound arguments." Incidentally, it is said that the number of students at Mr. Palmer's million dollar school at Davenport, Iowa, has decreased from 3,500 to about 300. (*J. Am. M. Ass.*, March 17, 1928.)

In view of recurring attacks of anxiety on the part of members of the medical profession in different portions of Canada anent the encroachment of chiropractic, it is opportune to print the above. It is quite apparent that few communities are prepared to entrust their lives and their health to the care of any cult which does not demand of its practitioners a degree of general education and a knowledge of the basic principles governing the form and function of the human body.

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Association Notes

Preliminary Programme

FIFTY-NINTH ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION
CHARLOTTETOWN, JUNE 18, 19, 20, 21, 22, 1928

Monday, June 18th

9.00 a.m.—Registration at Prince of Wales College.

10.30 a.m.—Meeting of Council. Prince of Wales College.

12.30 p.m.—Council Luncheon at Victoria Hotel. Guests of the President-Elect, Dr. S. R. Jenkins.
Installation of the President.

1.30 p.m.—Luncheon at Beach Grove Inn, and drive about the City and Suburb—for ladies.

2.30 p.m.—Meeting of Council.

7.00 p.m.—Dinner at Beach Grove Inn. The Council to be guests of the Charlottetown Medical Society.

8.30 p.m.—Reception and Musicale at Prince of Wales College.

Tuesday, June 19th

10.00 a.m.—Meeting of Council. Prince of Wales College.

11.00 a.m.—Drive to Cavendish, where luncheon will be served.

12.30 p.m.—Luncheon.

2.30 p.m.—Meeting of Council.

4.30 p.m.—Tea at Golf Links, guests of Charlottetown Golf Club.

7.00 p.m.—Dinner. The Council the guests of the Prince Edward Island Medical Association at the Victoria Hotel.

8.30 p.m.—Bridge for the ladies at the Navy League.

Wednesday, June 20th

Scientific Session. Prince of Wales College.

9.00 a.m.—Coarctation of the aorta with obliteration of the descending arch diagnosed during life in a boy of 14; impending rupture of the aorta; cerebral death; with a statistical study of the causes of death in 200 cases with autopsy. (Lantern.)
Dr. Maude Abbott and Dr. W. F. Hamilton, Montreal.

The Treatment of Pernicious Anæmia.
Dr. Duncan Graham, Toronto.

The Post-operative Accident.
Dr. G. H. Murphy, Halifax.

Heart Disease and Pregnancy.
Dr. W. B. Hendry, Toronto.

Types of Encephalitis Lethargica in New Brunswick.
Dr. A. F. VanWart, Fredericton.

Carcinoma and Ulcer of the Stomach, with Demonstration of Wax Models.
Dr. E. M. Eberts, Montreal.

Pathological Changes in the Breast, and their Clinical Signs.
Sir Lenthal Cheatle, London, Eng.

Luncheon

4.00 p.m.—Garden Party at the residence of His Honour the Lieutenant-Governor of the Province of Prince Edward Island.

7.45 p.m.—Annual Dinner Dance at Beach Grove Inn.

Thursday, June 21st

9.00 a.m.—The Wasted Hand.
Dr. L. J. Austin, Kingston.

Asthma.
Dr. Daniel Nicholson, Winnipeg.

Primary Ulcerative Colitis.
Dr. P. H. T. Thorlakson, Winnipeg.

The Treatment of Chorea.
Dr. Haig Sims, Montreal.

Focal Infection as Encountered in Common Disabilities.
Dr. W. L. Robinson, Toronto.

Benign Papilloma of the Bladder.
Dr. R. E. Powell, Montreal.

Pleural Pains—their cause.
Dr. H. A. Bray, New York.

Maternal Mortality.
Dr. Helen MacMurchy, Ottawa;
Dr. W. B. Hendry, Toronto.

11.00 a.m.—For ladies. Drive about city and suburbs and visit to Fox Ranches.

Luncheon

2.00 p.m.—Tea at Dalvay, the summer residence of the Bishop of Charlottetown.

8.00 p.m.—Public Meeting, Prince of Wales College, at which the following addresses will be given:—

Sunlight—its effect on the growth and resistance of the child.
Dr. Alan Brown, Toronto.

The Value of Periodic Health Examinations.
Dr. A. Grant Fleming, Montreal.

Immigration.
The Honourable J. H. King, M.D., Minister of Health for Canada.

Friday, June 22nd

9.00 a.m.—The Use of Sulpho-cyanate of Soda in High Blood Pressure.
Dr. R. D. Rudolf, Toronto.

Cancer of the Cervix Uteri; the value of hysterectomy versus radiation in early cancer of the cervix.
Dr. John Fraser, Montreal.

Cancer of the Stomach.
Dr. F. N. G. Starr, Toronto.

Some Clinical Aspects of Hypothyroidism.
Dr. A. H. Gordon, Montreal.

Consideration and Treatment of Chronic Purulent Otitis Media.
Dr. Geo. Tobey, Boston.

Responsibilities and Opportunities of the General Practitioner in Preventive Medicine.
Dr. A. Grant Fleming, Montreal.

Some Common Mistakes in Diagnosis and Therapy in Diseases of Children.
Dr. Alan Brown, Toronto.

Luncheon

4.00 p.m.—Garden Party at the home of Dr. and Mrs. S. R. Jenkins, Charlottetown.

7.00 p.m.—Alumni Dinners and Class Reunions.

NOTES REGARDING THE MEETING

Headquarters.

The Prince of Wales College, in which will be housed the scientific sessions, registration, and scientific and commercial exhibits.

Registration.

The registration office will be found in the Exhibit Hall, Prince of Wales College. As admission to scientific sessions and entertainments will be by convention badge only, members are advised that they must register, as must also, the members of their party.

Messages.

It is suggested that members in attendance have all letters, telegrams and telephone calls directed to them in care of the Canadian Medical Association, Prince of Wales College, Charlottetown, P.E.I.

Programme.

It will be noted that there are to be no Sectional Meetings. All papers will be presented in General Sessions. The Programme Committee announces that the programme will start on time each morning, and will continue until completed before adjournment is made for luncheon. The afternoons are thus left free for entertainment.

The Annual Dinner Dance.

The Annual Dinner Dance will be held on Wednesday night at Beach Grove Inn.

Thomson's Mills, Prince Edward Island

Beach Grove Inn

Beach Grove Inn, Charlottetown, where the annual Canadian Medical Association dinner and dance will be held in June next, is a modern, splendidly equipped summer hotel, situated on an arm of the North River with a fine view of the harbour. It is two and a half miles from Charlottetown. The approach to the grounds runs through beautiful birch groves. The hotel has about eighty rooms well furnished, running hot and cold water and baths. It has an excellent ballroom, large dining room, the main and excessory dining rooms having a seating capacity of from five to six hundred. Well kept lawns surround the hotel, sloping gently to the shore fifty yards away where excellent sea bathing may be found. There is also a nine hole golf course and tennis courts for the use of the hotel guests. Mr. R. H. Sterns, the proprietor, has kindly consented to open the hotel for the Canadian Medical Association meeting, for which the local committee, at least, is very grateful.

Alumni Dinners.

Friday evening, June 22nd, has been left open for Alumni Dinners and Class Reunions. The Local Committee will gladly co-operate with all groups desiring private accommodation, but, in order to do so, must know the number of dinners to be held. Officers of the various Alumni Associations are advised to communicate with the Local Committee well in advance of the date of the meeting.

Entertainment.

The attention of members and their friends is called to the afternoon entertainment which is being provided. Believing that the social side of the meeting is quite as important as the scientific, the Local Committee has introduced an innovation this year in leaving the afternoons free for pleasure. A really good time is in store for all who desire to avail themselves of the hospitality which is offered.

Golf.

The second annual golf tournament of the Association will be held on Tuesday, June 19th, handicap rules to govern. The first prize is the beautiful Ontario Cup donated by the Ontario Medical Association to the Canadian Medical Association. All golfers are urged to take part. Full particulars may be obtained from Dr. W. Tidmarsh, Charlottetown, P.E.I.

Accommodation.

The Local Committee is bending every effort to secure adequate hotel accommodation for everyone who attends. You will greatly assist the Committee in its work, and, at the same time, assure yourself of desirable accommodation, if you make tentative reservations by writing Dr. G. F. Dewar, Box 155, Charlottetown, P.E.I., Secretary of the Housing Committee, at the earliest convenient date. All reservations made up to and including June 9th, will be acknowledged early in the week of June 11th, so that, upon arrival in Charlottetown, you may proceed directly to the place reserved for you.

Block House Light, Entrance to Charlottetown Harbour

IMPORTANT!

For Visitors to Charlottetown

Below you will find a series of questions. If you plan to attend the C.M.A. Convention at Charlottetown, in June next, will you please fill in this questionnaire and return it at once to the Secretary, Dr. I. J. Yeo, Charlottetown, P.E.I. If you desire proper hotel accommodations, it is important that you do this immediately.

Name .....

Address .....

	YES	NO
Do you plan to attend the C.M.A. Convention in Charlottetown, June 18th to 23rd?		
Are you coming alone?		
Are you accompanied by your wife?		
Are you accompanied by any other friends?		
If so, how many?		
Are you coming by train?		
Are you coming by automobile?		
Do you require hotel accommodations?		
If so, how many rooms?		
Are you planning to stop with friends?		
When do you plan to arrive at Charlottetown?		
How many days will you remain?		
Which of the following sports do you wish to engage in, golf, fishing, boating, tennis?		

Lieut.-Governor Heartz, Charlottetown

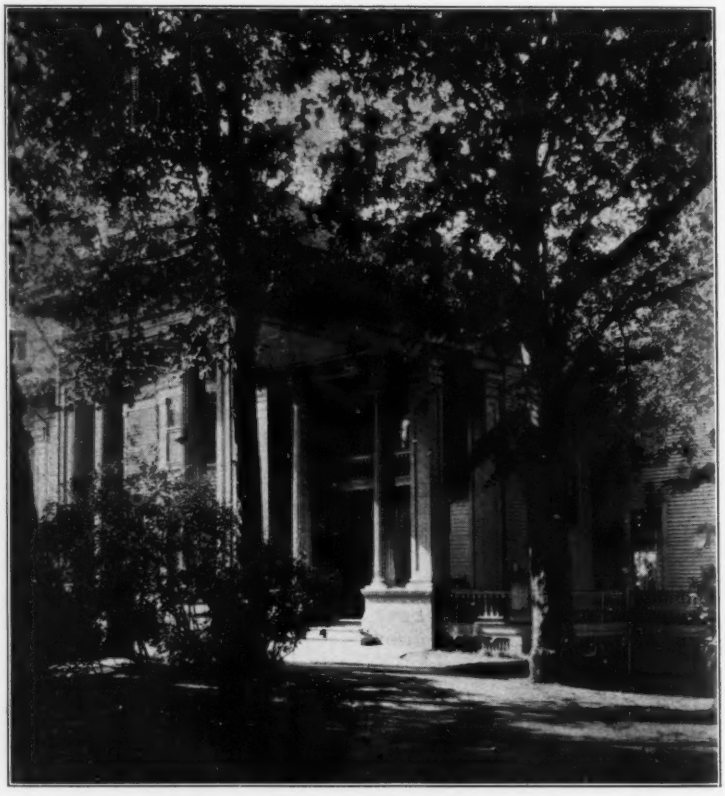
THE LIEUTENANT-GOVERNOR

Lieutenant-Governor Heartz whose photograph and beautiful residence are shown was born in Charlottetown and educated at Prince of Wales College, and Upper Canada College, Toronto. Associated with his father for several years in banking and ranching in the Province of Alberta he entered the local House of Parliament in 1909 and was appointed as Lieut-Governor in 1924. His Excellency is extremely popular and fills his position with tact and dignity. His entertainments are characterized by great taste and a lavish hospitality. His residence, Edgewater, is beautifully situated in grounds which have been laid out with much skill, and take advantage of the charming vista possible in every direction. His Excellency is looking forward with pleasure to entertaining members of the Association during their visit to Charlottetown.

ILLUSTRIOUS SONS OF PRINCE EDWARD ISLAND

Prince Edward Island has produced many able men whose reputations have spread far beyond the confines of their Island home, many of whom have been knighted for the eminent services rendered to their country. It may be well to remember them on this occasion, although only a few belong to the medical profession.

Sir Robert Hodgson was born at Charlottetown in 1798, received his early education in the city schools and at King's College, Windsor, N.S. He was admitted to the Nova Scotia bar in 1819, and in the same year to the bar of Prince Edward Island. His political career began in 1825 and from that time until his death in 1879 he was for twenty-three years Attnorney-General, and eleven years president of the Legislative Council, twenty-two



"Edgewater," Gov. Heartz's Home, Charlottetown

years a member of the Executive Council, seventeen years Chief Justice and five years Governor of the Province. In 1869 he received the honour of knighthood, and in 1873 he was for the second time appointed Administrator of the Government. Sir Robert was the first native born chief justice, knight and lieutenant-governor of Prince Edward Island.

Sir William C. McDonald, the youngest son of the Hon. Donald McDonald, at one time president of the Legislative Council, was born at Tracadie, Prince Edward Island, in 1833 and educated at the Central Academy, Charlottetown. Sir William received his early business training with the Hon. Daniel Brennan in Charlottetown, and at the age of twenty-one arrived in Montreal well equipped for the mercantile pursuit which made him head of one of the largest manufacturing industries of the Dominion. His early business training, and his persistent and painstaking effort in the management of his affairs enabled him to become one of the wealthiest men in Canada; a wealth which enabled him to endow lavishly several centres of education. In Prince Edward Island he built the McDonald School and constructed an addition to Prince of Wales College, which gives increased library facilities, exercising rooms, assembly hall and enlarged Model School.

Sir Louis Henry Davies, a brilliant Canadian statesman and orator, was also born in Charlottetown, Prince Edward Island, in 1845. He received his early education at the public schools and at the Prince of Wales College. While very young he began the study of law, and at the age of twenty-one was admitted to the bar of Prince Edward Island and soon rose to a leading position in his profession. His political career began in 1872. From 1876 to 1878 he was Premier and Attorney General of the Province, and was employed as one of the British Counsellors on the British International Fisheries Commission. From 1882 to 1901 he was a member of the House of Commons and served as Minister of Marine and Fisheries in the Cabinet of Sir Wilfred Laurier for five years. In 1901 he was appointed to the Supreme Court of Canada, later becoming its Chief Justice, which position he held until his death in 1925.

Major Sir Andrew Macphail, Kt., O.B.E., B.A., M.D., C.M., LL.D., M.R.C.S., England, L.R.C.P., London, F.R.S.C., was born at Orwell, Prince Edward Island, November 24, 1864. He received his education at Prince of Wales College, and in McGill University. After post-graduate studies in London, he returned to Canada and received the appointment of Professor of Pathology at the University of Bishop's College and Pathologist to the Western Hospital, Montreal. In 1907 he became Professor of the History of Medicine at McGill University, which position he still holds. In 1914 he enlisted with the Sixth Field Ambulance of Montreal and served in France with this unit, later being transferred to Canadian Headquarters staff in London where he was in charge of technical equipment for Canadian medical services until 1919. In 1918 he was created a Knight Bachelor as a reward for his war service. Early in his career Sir Andrew's outstanding abilities were diverted from medicine to that of literature. For several years prior to the war he was editor of the *Canadian Medical Association Journal* and the *University Magazine.* In this capacity his brilliant and subtle pen earned for him a high place in the literary world. In 1910 he was elected Fellow of the Royal Society of Canada, and in 1917 was appointed Cavendish Lecturer. He was later chosen to write the official history of the Canadian Forces in the Great War, the first volume of which "Medical Services" was published in 1925.

Sir Robert Alexander Falconer, a Canadian educator, was born at Charlottetown, Prince Edward Island, in 1867. He received his early education at Prince of Wales College and at Queen's Royal College, Trinidad. He then continued his studies at London, Edinburgh, Berlin, Leipzig and Marburg. In 1892 he was ordained Minister of the Presbyterian Church. In the same year he accepted a professorship in Pine Hill College, Halifax, and became its principal in 1904. In 1907 he was called to the presidency of Toronto University, which position he occupies at the present time. Sir Robert has made several important contributions to literature and holds a leading position among educationalists in Canada.

Sir William Wilfred Sullivan, an outstanding figure in the political and judicial life of Prince Edward Island, was born at Hope River in 1843, a lineal descendant of the celebrated Irish orator, Daniel O'Connell, on the paternal side and related to the famous Justin McCarthy on the maternal side. He received his early education at the Central Academy and St. Dunstan's College, Charlottetown. After a short period of newspaper work he took up the study of law, and was admitted to the bar in 1867, where he quickly won eminence as a brilliant advocate. He entered politics in 1876, and later succeeded Sir Louis Davies as attorney general and premier of the Province. In 1889 he was appointed chief justice of the Province, which position he filled with unusual distinction for many years. On the bench his prudence, good judgment, keen acumen and rare common sense marked him as an upright and just judge. In 1914 he received the honour of knighthood. He died in 1920 after a long and honourable public career devoted entirely to the service of his native province.

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OSLER MEMORIAL FUND

The Subscriptions and Pledges for the Osler Memorial Fund of the Canadian Medical Association have now reached the total of $3,389.12, of which $3,035.00 have been placed in the hands of the Treasurer of the Canadian Medical Association for investment. One subscription has been received by which $5.00 per year has been turned over to the Committee in perpetuity.

Surely there are a large number of men interested in Osler, who would like to contribute. There have been thus far only 241 subscribers, or an average of $14.50 per man. Larger or smaller amounts would be gladly received by the Committee and should be sent to the Central Offices of the Association at 184 College St., Toronto 2, Ontario, addressed to the Osler Memorial Committee.

Provincial Association Notes

PRELIMINARY PROGRAMME OF THE FORTY-EIGHTH ANNUAL MEETING OF THE ONTARIO MEDICAL ASSOCIATION TO BE HELD IN KINGSTON, MAY 29th, 30th, 31st and JUNE 1st, 1928.

HEADQUARTERS

La Salle Hotel and City Buildings.

REGISTRATION

The registration office will be found in Ontario Hall at the City Buildings. As admission to scientific sessions and entertainments will be by convention badge only, members are advised that they must register, as must, also, the members of their party.

The scientific meetings are to be held in Memorial Hall, City Buildings.

MESSAGES

It is suggested that members in attendance have all letters, telegrams and telephone calls directed to them in care of the Ontario Medical Association, City Buildings, Kingston.

ACCOMMODATION

Members are urged to notify the Local Committee at once with reference to accommodation desired.

It is also important that, immediately upon your arrival, you and your party proceed to the convention headquarters at the City Buildings, and register. If you have made tentative advance registration, full particulars of the accommodation secured for you will be available.

PROGRAMME

It will be noted that there are to be no Section Meetings. All papers will be presented in General Sessions. The Programme Committee announces that the programme will start on time each morning, and will continue until completed, before adjournment is made for luncheon. The afternoons are thus left free for entertainment.

THE ANNUAL DINNER DANCE

The Annual Dinner Dance will be held on Wednesday night in the La Salle Hotel. Following the address of the President, the members and their ladies will enjoy three hours of dancing. Tickets will be on sale at the Registration Bureau and should be obtained at time of Registration.

ALUMNI DINNERS

Thursday evening, May 31st, has been left open for Alumni Dinners and Class Reunions. The Local Committee will gladly co-operate with all groups desiring private accommodation, but, in order to do so, must know the number of dinners to be held. Officers of the various Alumni Associations are advised to communicate with Dr. W. A. Jones, Kingston, Secretary of the Local Committee, well in advance of the date of the meeting.

ENTERTAINMENT

The attention of members and their friends is called to the afternoon entertainments which are being provided. Believing that the social side of the meeting is quite as important as the scientific, the Local Committee has introduced an innovation this year in leaving the afternoons free for pleasure. A real good time is in store for all who desire to avail themselves of the hospitality which is offered.

PROGRAMME

Tuesday, May 29th

Place of meeting Memorial Hall, City Buildings.

10:00 a.m.—Meeting of the Board of Directors.

11:00 a.m.—Meeting of the Committee on General Purposes.

12:30 p.m.—Luncheon.

2:30 p.m.—Meeting of the Committee on General Purposes.

6:00 p.m.—Meeting of the Nominating Committee.

7:30 p.m.—Round Table Dinner and Conference (at La Salle Hotel); conducted by the Committee on Inter-Relations. All members of the Association are cordially invited to this function.

Wednesday, May 30th

Place of meeting Memorial Hall, City Buildings.

8:30 a.m.—Registration.

9:00 a.m.—Business Meeting of the Association.
Report of the Committee on General Purposes.
Report of the Nominating Committee.

9:30 a.m.—"Dermatitis Venenata," Dr. W. R. Jaffrey, Hamilton.
Discussion led by Dr. Omar Wilson, Ottawa.
"Coronary Thombosis," Dr. N. B. Gwyn, Toronto.
Discussion led by Dr. A. J. MacKenzie, Toronto.
"Procidentia Uteri," Dr. Geo. Hooper, Ottawa.
Discussion led by Dr. F. B. Mowbray, Hamilton.
"Symposium on Subacute and Chronic Forms of Nephritis"—
1. Etiology, pathology and clinical classification, Dr. W. L. Robinson, Toronto.
2. Symptomatology, course, clinical and laboratory findings, Dr. H. S. Hutchison, Toronto.
3. Diagnosis, prognosis and treatment, Dr. W. R. Campbell, Toronto.
Discussion opened by Dr. Duncan Graham, Toronto.
"Uterine Hæmorrhage, its causes and treatment," Dr. Thomas Cullen, Baltimore.

Luncheon

Afternoon.—Boat trip among the Thousand Islands—Golf—Motor Drives.

7:30 p.m.—Annual Dinner Dance, La Salle Hotel.
Address of the President, Dr. Weston Krupp, Woodstock.

Thursday, May 31st

Place of Meeting, Memorial Hall, City Buildings

8:45 a.m.—"The histamine test of gastric secretion, application in clinical and research work," Dr. H. V. Dobson, Peterborough.
Discussion led by Dr. W. Magner, Toronto.
"Arterial Hypertension," Dr. G. C. Hale, London.
Discussion led by Dr. H. C. Wales, Toronto.
"Intestinal obstruction and its treatment by enterostomy, etc," Dr. G. H. Stobie, Belleville.
Discussion led by Dr. Roscoe R. Graham, Toronto.
"Carbon Monoxide Poisoning," especially its late effects, Dr. J. C. S. Battley, London.
Discussion led by Dr. W. R. Campbell, Toronto.
"Pernicious Anæmia," Dr. S. M. Asselstine, Windsor.
Pernicious Anæmia and its Dietetic Treatment," Dr. E. E. Mills, Montreal.
Discussion led by Dr. J. H. Laidlaw, Ottawa.
"The Importance of Roentgen Rays in Diagnosis," Dr. T. L. Gray, St. Thomas.
Discussion led by Dr. W. A. Jones, Kingston.
"The Uses of the Duodenal Tube in Diagnosis and Treatment," Dr. B. V. Vincent Lyon, Philadelphia.
Short Business Session of the Association.

Luncheon

2:00 p.m.—Capitol Theatre, showing of film produced by Dr. R. G. Canti, London, England—
"Growth of tumour cells in vitro and effects of radium thereon."
Military Tournament, Royal Military College.

7:30 p.m.—Alumni Dinners.

Friday, June 1st

Place of Meeting, Memorial Hall, City Buildings

8:45 a.m.—"Normal Obstetrics," Dr. W. P. Tew, London.
Discussion to be arranged.
"Surgical Shock," Dr. D. T. Smith, Ottawa.
Discussion led by Dr. F. Etherington, Kingston.
"Idiopathic Ulcerative Colitis," Dr. E. E. Cleaver, Toronto.
Discussion led by Dr. W. Magner, Toronto.
"Chronic Intestinal Indigestion," Dr. H. Little, London.
Discussion led by Dr. R. R. MacGregor, Kingston.
Address, (Subject to be announced later), Dr. J. G. Dwyer, New York City.
"Atypical Goitres," Dr. J. K. MacGregor, Hamilton.
"Investigation and Surgical Treatment of Goitres," Dr. S. K. Evans, Ottawa.
Discussion led by Dr. A. J. Grant, London.
"The practising physician and his relationship to Public Health Service," Dr. James Wallace, Associate Field Director, American Public Health Association.
Short Business Session of the Association.

Luncheon

2:00 p.m.—Capitol Theatre, showing of film produced by Dr. R. G. Canti, London, England—
"Growth of tumour cells in vitro and effects of radium thereon."
Garden Party, Rockwood Hospital.

REMINDERS

Excellent Golf Course—Bring your clubs.

Tennis players will be well taken care of.

The Frontenac Club and the Kingston Yacht Club will also extend privileges.

Lots of cars to show visitors about.

Kingston and surrounding country abound with historic interest.

Scientifically and socially this is going to be a splendid meeting.

PLAN TO BE PRESENT

XUM

Medical Legislation

MEETING OF THE UNITED FARMERS OF CANADA IN SASKATOON

Farmers in Saskatchewan Uphold the Chiropractors.—The following resolution was passed by the Saskatchewan section of the United Farmers of Canada at their recent convention in Saskatoon:—

"BE IT RESOLVED that the Saskatchewan legislature be asked to enact such changes in legislation as will permit the practice of chiropractic in this province under such rules and regulations *as will protect those qualified to practice the science of chiropractic,* and also such legislation as will permit the University of Saskatchewan to select the examiners of candidates to practice chiropractic only from those names suggested by the chiropractors at present practising in the province. And furthermore such legislation as will permit the board of examiners thus selected to draw up a list of subjects on which the candidates are to be examined, and set the fees that they deem necessary to cover the cost of conducting all examinations, and finally, such further legislation as is deemed necessary *to give the public the privilege of choosing a chiropractor if they wish.* And further that the government considers whether it would be advisable to introduce such changes in legislation during the 1928 session of the legislature, that the period of exemption from prosecution of unlicensed chiropractors practising in Saskatchewan be extended until May 1, 1929, in order that chiropractors be not molested until the necessary changes mentioned above be made on the statutes and brought into effect."

Farmers also ask Government to care for Indigent Sick.—The same convention passed the following resolution regarding the indigent sick:

"WHEREAS the government is bringing out immigrants on a large scale and whereas the Municipal Act, Sec. 198 to 203 compels the municipalities to assume the expense of sick and destitute persons who have resided in the rural municipality for thirty days;

AND WHEREAS the cities and towns put up notices that no relief will be given during the winter, thereby forcing the indigents on to the rural municipalities;

THEREFORE BE IT RESOLVED that we ask the Board of Directors of the U.F.C. to petition the government to take over the care of the sick and destitute."

While the hospitals can collect payment for the indigent sick from the municipalities, the doctors can collect only when authorized by the reeve of the municipality to treat the patient. In case of emergency it is usually not possible to get in touch with the reeve before proceeding with treatment.

Correspondence

Our Edinburgh Letter

(From our own correspondent)

Some figures, recently printed in the *Scotsman,* regarding the cost of a Scottish university education may be of interest to Canadian students. While it is generally admitted that a student at Oxford or Cambridge requires from £225 to £300, the position in Scotland is somewhat different. It should be remembered that the average academic year consists of 30 weeks, and no allowance is made for expenditure during the holiday period. During the year 1925-26, 56 per cent of Scottish students were found to be residing at home, and the remainder to be living in lodgings or hostels. It will be noticed that among the sources of expenditure are fees, board and residence, clothing, books, societies, etc.

AVERAGE COST PER ANNUM IN THE FACULTY OF MEDICINE:

	In lodgings £.s.d.	$
(A) Away from home.		
(1) Fees:		
(1) Matriculation	2–2–0	10.50
(2) Class Fees	36–0–0	180.00
(3) Hospital and Laboratory Fees	4–0–0	20.00
(4) Examination Fees	7–0–0	35.00
	49–2–0	245.00
(2) Board and residence:	£.s.d.	$
(1) In lodgings (at 35s. per week)	52-10-0	262.50
(3) Other expenditure:		
(1) Clothing	15–0–0	75.00
(2) Travelling, books, societies, etc.	20–0–0	100.00
Total	136-12-0	683.00
(B) At home. Deduct £30	£106–12s.	$533.00

The minimum period for the course in medicine is five years. The class fees are the highest of all the faculties, and the nearest approximation is £36 per annum. Hospital fees have to be added to those for laboratories, and are £4 on an average. Examination fees are almost exactly £7 annually. A sum of £20 is allowed under 3 (2), since expensive instruments and books must generally be purchased. The annual average cost for Medicine may therefore be taken at £140 (in lodgings), and £110 (at home). One is inclined to think that whoever compiled these figures was somewhat of an optimist, and that the medical student who kept within this expenditure might develop a very high standard of thrift, if he survived the struggle, but as far as the enjoyment of an academic year was concerned, his period as an undergraduate would not be a bed of roses.

"The distance between the professors and students of the Scottish Universities has long been recognized as unfortunate." At the Scottish Inter-Universities Conference of Students' Representatives Councils this question has been presented for discussion, and a motion has been formulated to the effect "That this Conference urges on the University Courts that desirability of providing more ample facilities for free discussion between professor and student, feeling that only by such discussion can the peculiar difficulties which present themselves to the student be more easily solved, and a better appreciation of them be gained by the professor. This would appear to be an interesting commentary on the modern trend of ideas. Even Scottish professors are not to be immune from the encroachment of democratic principles. Scottish professors have done well in the past, and Scottish students have not been too badly taught, so that one is inclined to wonder whether any half-hearted descent from the Olympian Heights of the professorial rostrum will be fraught with far-reaching benefits.

The motor-accident cases admitted to the Edinburgh Royal Infirmary last year numbered 382. The aggregate number of days residence of these patients while under treatment was 7,051 and the cost to the Institution was about £3,000. This seems to be quite an unnecessary burden imposed on the funds of a voluntary hospital, and the managers will no doubt continue their efforts to secure some monetary recompense to the infirmary funds from the insurance companies, or from the clubs and associations interested in motoring.

The University Court has received intimation from Professor James Walker of his intention to retire from the Chair of Chemistry. In 1904 he was appointed to succeed Professor Crum Brown. Professor Walker had a principal share in the erection of the new chemical laboratories at "King's Buildings" in the south side of the city, which has resulted in the possession by the university of a department of chemistry unrivalled in this country.

The Morison Lecture was delivered by Dr. George M. Robertson, Professor of Psychiatry, and Physician Superintendent of Morningside Asylum, in the Hall of the Royal College of Physicians, on January 25th. This lectureship was founded by Sir Alexander Morison in the year 1864, for the purpose of endowing the lectureship which he had previously established in 1823 on subjects connected with mental diseases. Dr. Robertson chose as his subject "The teaching of psychiatry in Edinburgh and Sir Alexander Morison."

The annual meeting of the Royal Public Dispensary was recently held in the City Chambers. This institution has a wonderful record of useful service for over 150 years in the Pleasance, a quarter of the city where it was urgently required, and where it has given during all those years free medical advice and attention. It was originally founded in 1776 by Dr. Andrew Duncan (Senior), a distinguished professor of the Institutes of Medicine, and a former President of the Royal College of Physicians. This man of boundless energy was responsible for initiating several projects which still flourish in the city. In 1807 he was successful in sending a petition to the king who granted the Royal Charter under which a lunatic asylum was erected at Morningside. He took a leading part in the foundation of the Edinburgh Medico-Chirurgical Society, and was its first President in 1821. He founded the Harveian Society of which he was the Secretary for forty-seven years, and he established the Æsculapian Dining Club, the oldest social club in the city. It was Dr. Duncan's practice for more than fifty years to climb to the top of Arthur's Seat—a mountain near Edinburgh—every May Day morning. This feat he accomplished for the last time in 1827 ,when in his 83rd year.

An interesting ceremony took place in the Hall of the Royal College of Physicians, on February 1st, in honour of Sir Robert Philip, Mr. Alexander Miles, and Dr. Fergus Hewat, who were respectively President, Treasurer and Secretary of the meeting of the British Medical Association in Edinburgh last July. These three gentlemen were the recipients of various articles of silver, the gifts of the members of the Executive Committee and local office-bearers of the Scientific Sections in recognition of their labours to make the Edinburgh meeting a success. Mr. Logan Turner, Vice-President of the College of Surgeons presided, and was supported by Dr. Robert A.

Fleming, and Dr. George Robertson, the President and the Vice-President of the Royal College of Physicians.

February, 7, 1928, GEORGE GIBSON.
23 Cluny Terrace, Edinburgh.

Our London Letter

(From our own correspondent)

The bicentenary of John Hunter's birth fell on February 13th, and memorial celebrations organized by the Royal College of Surgeons of England took place in London during that week. On February 14th Sir Holburt Waring delivered the Hunterian Oration on "The Progress of Surgery from Hunter's Day to Ours." This lecture was freely illustrated and the striking contrast between the conduct of surgical operations even one hundred years ago and those of modern times was well shown. In the evening the festival dinner was held at the college. On February 16th a reception was held and Dr. G. C. Peachey gave the Thomas Vicary Lecture on the "Homes of Hunter," beginning with a description of Long Calderwood in Lanarkshire where Hunter was born, and ending at his home in Earl's Court and his famous house in Leicester Square where he established his museum and lecture rooms. During the week in which the celebrations were in progress an extensive display of Hunterian portraits, specimens and relics was on view at the college, and Sir Arthur Keith, the conservator of the Museum, has published an interesting discourse on "The Portraits and Personality of John Hunter." Earlier in the month the Hunterian Society held a festival banquet at which the Lord Mayor of London was present. The story of Hunter's death at the Board Meeting at St. George's Hospital has been told on many occasions, and repeated during the past month, but there is quite a modern touch in an article by Dr. J. A. Ryle in which he shows that Hunter must have suffered from coronary thrombosis. From the various accounts of Hunter's life and work which have appeared during the month, it is interesting to see what qualities and attainments procured for him the remarkable reputation and position he enjoyed. He was known to be a man of hot temper, he had few friends and he was always abrupt and plain in speech. Yet he was a Fellow of the Royal Society before the age of forty; he was also surgeon extraordinary to the King and held the highest rank in the medical department of the army. He enjoyed a large income from his lucrative practice, and spent it nearly all in the collection and investigation of all sorts of animals. After his death the House of Commons voted £42,500 for the purchase of his collection for the nation, a big sum in those days. His vast influence on the profession was the result of his scientific mind, his genius for experimentation and his power of tremendously hard work. His pupils and admirers were the younger surgeons of his generation, and they became the leading surgeons of the first quarter of the nineteenth century, carrying on the tradition of surgical pathology, which Hunter had established, and which was undoubtedly the essential factor in founding his reputation.

Motorists and the Hospitals.—As a result of inquiries instituted last year it has been estimated that the cost of road accidents to the hospitals throughout the country is about £500,000 each year. The Manchester Royal Infirmary records the admission of a daily average of 80 casualties and in cottage hospitals throughout rural districts it is becoming necessary as the week-end approaches to hurry the discharge of local patients, for whom such institutions were intended, in order to make room for the inevitable influx of accident cases, often of patients living miles away. It is obvious that when an accident has occurred the sufferer needs urgent attention such as can be best obtained by his speedy transport to an organized hospital where he may have to be detained for lengthy and costly treatment. In a certain number of cases the patient arranges to pay for all expenses he incurs, but far too often this voluntary act—for under the charters of most hospitals compulsion is not possible—is forgotten. In any case the poor pedestrian, knocked down by a passing motorist and deposited on the door-step of a cottage hospital cannot be expected to pay, and even if he receives compensation it does not follow that any of this will find its way to the hospital. The present situation is therefore not only difficult but is obviously ludicrous and steps are being taken to meet it. The "King's Fund" is to call a conference of representatives of the hospitals, the insurance companies and the leading motorists' organizations to consider the whole subject. In the meantime certain schemes have already been launched. Thus the Eagle, Star and British Dominions Insurance Company has devised a policy which, for a premium of five shillings a year will guarantee to the hospital which treats a patient injured by a moving road vehicle, a payment of half-a-guinea a day up to 30 days, together with three guineas for medical fees or five guineas should the patient be detained for more than a week. There is a similar scale for casualty patients. On a different plan is the effort being made in Sheffield whereby every motorist who takes out a driving license is to be asked to contribute a shilling to the funds of the Sheffield Joint Hospitals Council. The Middlesborough Motor Club has instituted an insurance scheme which, for the premium of half-a-crown a year secures payments to hospitals in any part of the

country ranging from half-a-guinea for a dressing to £15 for detention for five to six weeks. In certain cases brought before the courts part of the damages allotted has been set aside to compensate the hospitals. All such schemes are in the right direction, but they need co-ordination, and further developments of the work of the Hospitals Motor Accident Policy Association are awaited with interest.

ALAN MONCRIEFF

London, March, 1928

MEDICAL MEN AND THE NARCOTIC ACT

To the Editor:

A recent number of the *Canadian Pharmaceutical Journal*, 1928, lxi, 356, contains an article under the above title, in which the writer stated that it was a matter of regret that the article in the *C.M.A. Journal* of last January did not fully explain to physicians the whole purport of the Opium and Narcotic Act, and the necessity of the doctor co-operating with the druggist in order that narcotics might not be diverted from their proper medicinal use. We would have liked the *Canadian Medical Association Journal* to have explained to its readers the following:—

(1) A druggist is liable to a fine of $200.00 if he fills a doctor's telephone order for narcotics. He must have the doctor's prescription or order duly signed and dated, and the signature verified before it can be filled.

(2) A druggist cannot accept a repeat order for a prescription for narcotics over the telephone. A fresh prescription or order must be written on each occasion.

(3) A druggist living in a border town cannot fill the prescription of a physician from a province other than the province in which the druggist's store is situated.

Furthermore we would like physicians to realize that under the term "narcotics" is included not only the narcotic alkaloids and their salts but also preparations and prescriptions containing quantities of the official preparations of any of these narcotic drugs such as Compound Tincture of Camphor or Tincture of Opium.

The lack of understanding of the details of the Opium and Narcotic Drug Act on the part of the physician has been causing a great deal of friction lately between the doctor and druggist, and we believe if the nature of the Regulations was properly explained to the doctors they would realize that very heavy penalties are imposed upon the druggist for non-compliance with the Act and this knowledge we are sure would smooth out a great deal of the friction existing at the present time. V.E.H.

Toronto, March 5, 1928.

THE DANGERS OF THE USE OF ANTITOXIN

To the Editor:

For the benefit of the profession, and for the purpose of calling forth comment for my own benefit, I wish to cite a case of anaphylaxis, following the giving of forty thousand units of diphtheria antitoxin plus fifteen thousand units of scarlet fever antitoxin.

The patient, a school teacher, nineteen years of age, weighing about one hundred and fifty pounds, developed a diphtheric throat, and as there were several cases of scarlet fever in her school section and she had been to several country dances in that neighbourhood, she was afraid she might have been exposed to scarlet fever. She therefore came to my office and asked to have the scarlet fever antitoxin given to her. This I did, and because of her bad throat also gave her forty thousand units of diphtheria antitoxin.

Before she reached home in a car, less than fifteen minutes later, she developed a severe pain in her head and in the epigastrium. Her eyes were swollen shut, and she had a very profuse urticaria. She thought she was going to die.

I visited her and gave her promptly one c.c. of adrenalin chloride 1-1,000 hypodermically and prescribed sodium bicarbonate 30 grs. in water by mouth every three hours, a large dose of castor oil, and an enema to keep her bowels freely open for the next forty-eight hours and ordered her at the same time to drink plenty of liquids.

In two days the swelling began to disappear from her eyelids and the urticarial rash to leave her body, but she had now an intense stomatitis and a burning when her bowels move. Upon inquiry, I found that she had been given a dose of diphtheria antitoxin about three years previously for a bad sore throat.

Upon looking up the authorities upon anaphylaxis, I found that it was of rare occurrence, but may come on immediately or within twelve hours after the administration of the serum. Death rarely occurs, but does sometimes, following the symptoms I have mentioned above.

One of my authorities suggested that in patients who have had the serum previously, a small amount, from 2 drops to 1 c.c., should be given and twelve hours allowed to elapse. If no untoward symptoms develop by that time a full dose of serum may be safely given. If untoward symptoms manifest themselves, the patient should be desensitized by giving a small dose of ½ c.c. an hour before the main dose. There is less danger if the serum is given intravenously.

This method is not taught in the medical schools, so far as I know. I wonder what method is now used in the large hospitals for

contagious diseases. Do they ever have such cases there? Does death with the present antitoxins ever happen? Should patients who have once been given antitoxin, and later develop diphtheria ever be given antitoxin again, or is it advisable or customary to test them first and desensitize them if necessary, in the way suggested above. Is that method of desensitizing satisfactory? Is there any contra-indication for using diphtheria and scarlet fever antitoxins together? Does scarlet fever antitoxin positively and completely control a diphtheric throat accompanying scarlet fever? or is it necessary to give diphtheria antitoxin also?

Cannot the protein of the antitoxin be removed from the serum without in any way removing or impairing the efficiency of the antitoxin bound up in the protein molecules? Obviously this sudden shock appearing so soon after the giving of the serum is, as this authority suggests, different from serum sickness which appears often a week after the serum is given and is manifested most frequently by an urticaria either at the site of the injection only, or generalized over the body. I have given antitoxin thousands of times both initial doses, and to many a second dose a year or more after the first dose, and have never seen anything before, such as happened in this case.

I should like to have this letter printed because of the caution which would appear to be necessary in the giving of second doses of antitoxin, and would like to have a discussion on it if that is possible.

Dresden, Ont., JOHN A. MACMURCHY
Feb. 20, 1928.

Ed.—The majority of the questions asked by the writer are answered in an editorial appearing in the present issue. We will be very pleased however, to open our pages to a further discussion of this very important subject.

Clippings on Current Topics

THE OXFORD ENGLISH DICTIONARY*

Of the many good things the nineteenth century bequeathed to the twentieth through its belief in the capacity of individual initiative and enterprise to accomplish big undertakings is the *Oxford English Dictionary*. The first part was published on February 1, 1884; the final sheets were returned for press by Mr. Onions on January 5th, 1928, and the last part will be published on April 19th. Seventy years ago the Philological Society, after considering and rejecting schemes for the production of supplements to standard dictionaries, resolved to accept the ideal of Trench, author of the *Study of Words*, then Dean of Westminster, to prepare and somehow to find means to print and publish "a completely new English dictionary." It was realized that the task would be very big, but no one then had any definite idea of what the cost would be in time and money. It proved to be in time fifty years of continuous labour by a succession of skilled editors, helped by large sub-editorial staffs, and £300,000 in money.

From the first it was realized that the kind of complete dictionary aimed at could only be produced through the co-operation of many voluntary contributors, and even in 1857 Trench had received offers from seventy-six. When the larger scheme was got fully under way the number had increased tenfold, and the maximum of over eight hundred, reached in 1881, was maintained to the end. They read books, copied out passages from them to illustrate meanings and shades of meaning, and verified facts; one contributor, Mrs. Moore, who came on an unusual word describing the seeds of a certain plant, procured some of the seeds, gummed them on her slip, and pasted transparent paper over them. The slips, as prepared, were sent to the scriptorium or dictionary rooms, where they were pigeon-holed, with others referring to the same word, ready for the editor. Nearly all the work of editing has been done in Oxford. Herbert Coleridge, the first editor, was of Balliol, but had barely made a start when he died of consumption in 1861. Furnivall, who succeeded him, was keenly interested in the enterprise from the start, and remained a diligent contributor until he died in 1910, at the age of 85. He was a lively writer and an exuberant controversialist, who must have been surprised to find himself a lexicographer. He was much concerned with the publication of early English texts, and for this purpose founded several societies. His hobby, if it may be so called, made him a very valuable contributor as long as he lived, and during the eighteen years for which he was editor he not only kept the project alive in its infancy, but watched over its adolescence by continuing the collection of material (slips) and organizing sub-editing. The dictionary reached early manhood when, in 1878, Dr. J. A. H. Murray, then a master at Mill Hill School, took the matter up,

* This article which was the last written by Sir Dawson Williams before he resigned the position of Editor appeared in the *British Medical Journal*, February 25th, and may therefore have more than a passing interest from our readers.

and a year later, acting on behalf of the Philological Society, signed an agreement with the Clarendon Press for the publication of the dictionary. From that time it has been an Oxford enterprise, having indeed had many connections with that University all along. Murray began work at Mill Hill, where he erected a scriptorium and was helped by his brother-in-law and one assistant. In 1885 he removed to Oxford, and put up another scriptorium in the garden of his house. There he worked for thirty years, until his death at the age of 80. In the interval he was joined by three other editors, who took over certain volumes from him: they were Dr. Henry Bradley, who was responsible for E, F, G, L, M, and parts of S and W (he died in 1923); Dr. W. A. Craigie, who joined the staff in 1897, and from 1901 until he went to Chicago to be professor of English in 1925 edited Q, N, R, U, V, and parts of S and W; and Mr. C. T. Onions, M.A.Lond., who began to help Drs. Murray and Bradley in 1895 and became an independent editor in 1914. He has worked in this capacity ever since, with the exception of two years, when he was engaged in producing the Oxford *Shakespeare Glossary* and editing *Shakespeare's England*. Another valuable by-product of the great dictionary was the *Concise Oxford Dictionary*, a scheme of Furnivall's, carried out later on by H. W. and F. G. Fowler; recently this was supplemented by the *Pocket Oxford Dictionary* by the same authors.

The big Oxford Dictionary is a great achievement, and no other language possesses anything so good. We do not recall ever having gone to it without finding what we wanted, provided the word was in use when the volume in which it would find its proper place was issued. Though forty-four years is a short time in the life of a language, it is long enough for a good many new words to have come in. The Oxford University Press recognizes this, and announces in a special (February) number of its *Periodical* that a supplement is in preparation, "the main object of which will be to include words" (aeroplane and appendicitis are instanced) "which were born too late for inclusion." It is added, with fine liberality, that "copies of the supplement will be offered free to all holders of the complete dictionary."

Apart from its completeness, due to the inclusion of all words in use (not omitting scientific words) and of all words that ever have been used, even though now obsolete, the feature that gives the Oxford Dictionary its unique character is that it is constructed on a historical method. The first use of the word and its meaning at that time, and subsequent changes in meaning, and expansions and extensions of meaning, are all indicated and illustrated; the origin and etymology of the word also are explained and discussed, so that the book as a book makes fascinating reading—dangerously fascinating a busy man may sometimes find it. As the *Periodical* notes, a series of articles, "Medical Terms in the New English Dictionary" (as the book used to be called), was long an established feature of the *British Medical Journal*. They were written by the late Dr. J. A. Ballantyne of Edinburgh, who thus enabled our readers to keep track of the progress of the dictionary, and provided a gauge of its completeness in every direction. The Dictionary may be too big and too dear (fifty guineas) for most private libraries, but no public, university, or college library can afford to be without it. Its motto might be "Thorough."

ULTRAVIOLET RADIATION FOR THE GENERAL PRACTITIONER

BY R. KING BROWN, B.A., M.D., D.P.H.

(II)*

In my first article I dealt with wave-lengths and their measurement, and at the end referred to *ampères, volts, ohms,* and *watts,* in the very brief explanation in which some reference was made to the analogy between gas and electricity.

In his book on *Diathermy,* I see that Dr. Franz Nagelschmidt of Berlin uses the analogy of hydrostatics to explain these terms. If you take two vessels full of water, join them together by means of a pipe at the lowest point, and make one of them so that it can be lowered or raised in relation to the other, thus altering at will the level of the water in one in relation to the other, you have got a more or less accurate analogy of two vessels laden with electricity. If the height of one vessel of water is greater than the other, they tend to become of equal height, since the water from the higher flows into the lower; if you take the pressure in the communicating pipe, you will find that it is greatest on the side of the higher vessel, and that the rate of flow from one to another is determined by this pressure and the diameter and length of this communicating pipe.

Now see how this fits two jars laden with electricity. If you join them the electricity flows from the jar with the higher pressure (or "potential") to the jar with the lower potential. This is known as the difference in "potential", the "electric tension," and so on. Now this difference in potential or pressure is measured in volts, which is a unit of *pressure,* and corresponds approximately to the electromotive power of one Daniell cell; so that if you say that the current of a certain company or district is 240 volts, you mean that there is a difference of potential between the two poles at any point in the circuit equal to the strength of 240 Daniell cells.

* Article I, *Canad. M. Ass. J.*, Mar., 1928, xviii, 326.

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The next point which wants a little more explanation is the *ampère*. A unit of current is defined as that which, flowing in a circle of 1 cm. radius, exerts a force of 2 π dynes on a unit magnetic pole placed at the centre. This unit is called the C.G.S. electromagnetic unit of current, or shortly the E.M. unit.

This is, however, too large for many purposes, so that a smaller unit, the *ampère*, is commonly used. The amppère is one-tenth of the E.M. unit. Another definition of the ampère is the current due to the electromotive force of one volt working through the resistance of one ohm. The important point to remember is that it represents the *amount of current used* under certain conditions. It has already been mentioned that the volt equals the power of one Daniell cell. Stated more precisely, it is equal to the electromotive force of 1.1 Daniell cell. It is not necessary to go into the question of how this figure is arrived at, though those who desire to know will find it fully explained in any standard book on electricity.

The next term it is advisable to know something about is the *ohm*. This is briefly the *resistance* offered to an electric current by various substances. It has been stated that the resistance offered by a column of mercury 106.3 cm. long and 1 mm. section (14.4521 grms. in mass) offers at 0° a resistance of *one ohm*. It is founded on "Ohm's law," but we need not go farther into the question.

The last of the terms above mentioned is the *watt*. The watt is the unit of *power or activity developed* by a generating plant, and is arrived at by multiplying the voltage and current in ampères. Thus a dynamo yielding 20 ampères at a voltage of 100 equals 2,000 watts. The watt is equal to 107 ergs per second, or 0.735 of a foot pound per second, equals 0.00134 British horse power, so that one horse power equals 746 watts (nearly). As this is such a small unit the kilowatt is commonly used and equals 1.34 horse power. The commercial unit on which one is charged for the consumption of electricity for lighting and power is known as the *kilowatt hour*, or 1,000 watts for one hour. It is known as the "Board of Trade Unit" (B.T.U.), and costs for lighting purposes in London 6d. to 8d., and about a quarter of this for "power," which includes electric motors, heating apparatus, and U-V-R lamps, etc.

The importance of having a rough idea of the meaning of these terms will appear later when we come to consider the consumption of current by different types of lamps.

As a rule there are two kinds of currents used for commercial purposes, *viz.*, the *direct* or *continuous* current, and the *alternating* current. In the former the current flows in one direction only, and the current is identical with that coming from a cell, which gives a steady continuous flow. Dynamos can be constructed to give what is a continuous current for all practical purposes.

On the other hand, many large companies supply an alternating current, that is a current the undulations of which are reversed at intervals. Each reversal may be spoken of as the negative and positive phase of the wave, and according to the number of reversals per second the current may be styled of low or high frequency.

The currents for ordinary lighting purposes are mostly of the latter kind, the alternations being about 50 per second. This is also known as the "periodicity," and is the period of time between the commencement of one positive phase of the wave and the commencement of the same phase of the next following wave. In high frequency currents the periodicity may run into many thousands per second. The question of the nature of the current supplied is important from a practical point of view, since an alternating or direct current can be used with an ordinary carbon arc, and only a direct current with a mercury-vapour lamp unless there is supplied at the same time a "rectifier," which is an apparatus for converting alternating current into direct current. Some mercury-vapour burners may now be obtained which will operate on alternating current without a rectifier, but these cost a great deal more than the ordinary direct current type. (Abstract from the *British Journal of Actinotherapy*, February, 1928, ii, 216).

ARCHIBALD YOUNG'S ADDRESS ON LISTER IN GLASGOW

During the Lister centenary celebration in London in April, many notable addresses were delivered conveying profound truths and interesting reflections. In the press of a crowded week not a few failed to obtain the prominence that was their due. We are therefore glad to notice that the address of Mr. Archibald Young on Lister's work in Glasgow, which appeared in full in our special issue* under the auspices of the Lister Memorial Club of our Association, received special notice in a recent number of the *British Medical Journal* which reads as follows:

On the four hundred years old roll of the University of Glasgow, as Professor Young said, no name outshines in brilliance that of Lister. It is true that he was not an alumnus

* Lister: An address at the opening of the Lister Centenary Exhibition at the Wellcome Historical Medical Museum, London, *Canad. M. Ass. J.*, *October*, 1927, xvii, pt. 2, p. 1264.

of Glasgow. He stepped straight into the regius chair from his comparatively subordinate position in Edinburgh, and London will not forget that she nurtured him and gave him his early training in science and art. But the rising medical generation in Glasgow who were his students soon recognized what a priceless boon fortune had given to them in their professor, and they took him to their hearts as warmly as though he had been bred and born a Western Scot. Their affection took the practical form of a testimonial in support of Lister's candidature for the post of surgeon to the Royal Infirmary, and Professor Young is justly proud of the fact that among the 161 signatures the names of his uncle and of his wife's uncle can be read to-day. Although Dr. Young is able to show that the students at Glasgow warmly welcomed his teaching, he cannot deny that the lay managers of the Royal Infirmary were ignorant of the fact that they had entertained an angel unawares, for as late as 1870 they indignantly denied that the improvement in the healthiness of their wards was due to Lister's antiseptics, attributing it rather to improved ventilation, for which they took credit to themselves. A comparison between Lister's wards and those of other surgeons tells a very different tale. The convincing statistics of the mortality after operation in the pre- and post-antiseptic days which are quoted by Professor Young are, of course, not new, but the rising surgical generation needs to be told and retold from what bondage Lister delivered the surgeon and his patient. In his oration on Sir William Macewen, his predecessor in the regius chair at Glasgow, Professor Young pointed out the great services Macewen rendered to antiseptic surgery, and, later, in the evolution of aseptic surgery. Macewen had the strong,self-reliant personality of one who, himself convinced, takes little heed of the prejudices or hesitations of the unconvinced and wavering. As Huxley was the "bulldog" of Darwin, so was Macewen "ipso Listero Listerior," as was said by Sir William Gairdner.

Professor Young reminds us that Semmelweiss recognized the infectiousness of puerperal fever (he might have added that Oliver Wendell Holmes did the like independently); that Lemaire in 1863 advocated the use of carbolic acid for the destruction of germs in wounds, and that Bottini did the like in 1866. It was Lister alone, however, who possessed and used the training and the qualities which enabled him to reach the goal, not by a happy accident, but by a coherent process of laborious experiment and sound reasoning. The discoveries of Pasteur were open to all. One man applied them to the service of surgery, and that one was Joseph Lister.

EUGENIC STERILIZATION IN CALIFORNIA*

Since 1909 California has been practising eugenic sterilization in its state institutions, a total of approximately 5,000 operations having been performed up to January 1, 1927. Of these, four-fifths were in the state hospitals for the insane; one-fifth in the state home for the feebleminded. At the present time no one is allowed to leave the latter institution unsterilized. In the hospitals for the insane, only one new admission in five or six is sterilized.

For the last two years, a thorough study of the workings of this law has been under way, financed and directed by E. S. Gosney, a Pasadena philanthropist, in consultation with an advisory committee made up of recognized authorities in many different lines. Our judgment is that, on the whole, the law is functioning to the satisfaction of those interested, such as the medical profession, the social workers, and the relatives of sterilized patients, as well as the patients themselves. Vasectomy is performed on the male, salpingectomy on the female. There have been four deaths in these 5,000 operations; a man and a woman from effects of ether anæsthesia; two women from peritonitis. There has been no fatality to either sex in any hospital since 1920, although more than one-half of all the operations have been performed since then.

The success of the sterilization law has led to extensions in two directions. Most important has been the sterilization of women in the private practice of physicians. Few males are sterilized privately, but we think it likely that the number of salpingectomies thus performed in the last nineteen years is fully as great as the number performed in the state hospitals under the eugenic law, namely, about 2,000.

The second extension has been the sterilization of voluntary patients in the state hospitals. While the law provides for compulsory operation on the recommendation of the medical superintendent, approved by the Director of the Department of Institutions and the Director of the Department of Public Health, it has become the practice to get the written consent of the nearest relatives, thus in effect making the operation a voluntary one. Not one case in ten, perhaps not one in twenty, is sterilized without such consent, if there are any relatives accessible. The state is thus able to, and does, protect itself against overzealous social workers. But the conclusion is inescapable that sterilization is a matter of public concern; that it must be, in general, considered an integral part of a state system of supervision of the incompetent.

* Abstract of an address given by Paul Popenoe, of Pasadena, California, at the Third Race Betterment Conference, Battle Creek, Michigan, January 2-6, 1928.

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Whence it follows that private sterilizations, performed outside of the state institutions designated under the law, should also be subjected to some sort of state supervision.

In view of the growing tendency to extra-institutional sterilization, which includes members of the third group as well as the first two, it is concluded that all such sterilization should be put under control of the state, in order that all the interests of the public may be protected, and not merely those concerned with the reproduction of the mentally defective or socially inadequate.

THE FORMER IMPORTANCE OF OUR SEA-BORNE TRADE IN DRUGS

BY PROFESSOR D. FRASER-HARRIS, D.SC., M.D., B.SC., F.R.S.E.

Few of us have any idea of the magnitude and importance of the sea-borne trade in drugs, spices, and herbs which was once carried on between this country and the East. One of the most profitable trades in the Middle Ages was that in drugs. Herbs, spices, medicines, and perfumes were brought from China and the Far East, from Hindustan, from Africa, and from Arabia to the port of Venice, which for six hundred years was the great distributing centre for the rest of Europe. In her beautiful harbour, the fragrant cargoes from the Levant were transshipped to England, and to Flemish vessels for the last portion of their eventful western journey.

Drugs, spices, and herbs occupy in our minds no more important place than thousands of other things daily brought to our doors from the uttermost parts of the earth. But in the Middle Ages it was very different: herbs and "simples" were used in the kitchen, and vegetable drugs were compounded by the apothecary to an extent of which the most of us have no adequate notion.....For one thing, we have quite forgotten that throughout the entire Middle Ages, and, indeed, in England until after the Fire of London (1666), the Plague, or Black Death, was a constant source of paralyzing terror. Our forefathers made frantic efforts to fight the pestilence; and one of the most successful of these was the burning of spices and fragrant woods, very few of which were native but had to be imported from the East via the Mediterranean. There was also a favourite mixture called "Plague-water," which contained fifty-nine ingredients, most of them of exotic origin. Sir Walter Besant in his "History of London" gives us the recipe for a "plague-mixture," which requires twenty sorts of roots, sixteen of flowers, nineteen of seeds, besides an ounce each of nutmegs, cloves and mace, all of which along with new green walnuts had to be steeped in wine before being distilled.

Nor should we forget of what importance was the still-room in the Elizabethan household. All sorts of wines, never heard of nowadays, were made there from foreign ingredients, one of them, Gascony wine, was evidently a very remarkable distillate, for "it comforted the vital parts, cured dropsy and kept the old alive."

In Elizabethan London those merchants who received the spices, drugs, and perfumes from the Italian ports were all to be found in one street in the city, known as Bucklersbury, which connected the Poultry with Walbrook. It is said to have been named after one Buckeril, its first owner. Just as to-day we find the dealers in a particular kind of merchandise inhabiting a particular district—the tea merchants being in Mincing Lane, the dealers in theatrical costumes in Wardour Street, the old clothes' merchants in Whitechapel—so in the reign of Elizabeth the apothecaries, druggists, and grocers all had their businesses in Bucklersbury. What they handled had come from a far country by way of Italy; and therefore even at the present time we speak of a grocer who deals in these fine products as an "Italian warehouseman."

In Elizabethan times its fragrance was famous, for did not Shakespeare make Falstaff say in the "Merry Wives" that he was not like many of the "lisping hawthorn-buds that come like women in men's apparel and smell like Bucklersbury in simple time." ("Merry Wives of Windsor," III, 3.) Ben Jonson also mentions this street in "Westward Ho!" and in another poem. Some of the drugs so much valued in those days were—aloes, benzoin, camphor, cinnamon, cloves, cubebs, ginger, mace, musk, nard, nutmegs, opium and pepper. Bucklersbury is still the name of the street, but it smells no longer of cinnamon, cloves or camphor.

It was the ascendancy of Arabian pharmacy, and the contact of the Crusaders with their Moslem foes, that brought these oriental drugs into prominence in England as early as the twelfth century. It seems curious to be assured that it was balsams, spices, resins, rare woods and drugs which had much to do with the struggles between the Venetians and the Genoese and the Turks that culminated in the great naval battle of Lepanto in 1571. But indeed it was the defeat of the ships of Genoa in the sea-fight off Chioggia, as early as 1380, that marked the zenith of the supremacy of Venice. So long as all the merchandise from India had to come to Venice by way of the Levant and be carried from Venice by sea to the ports of Europe, the position of Venice in Europe was supreme, but, on that day when the first argosy from the Orient reached a port in Europe by an all-sea route, the sun of the commercial glory of Venice had begun to set. That day was the twentieth of May, 1498, when Vasco da Gama having doubled the Cape of Good Hope sailed triumphantly into Calicut. A deep gloom is said to have fallen on the Rialto when it became known that certain spice-laden ships of the Portuguese had sailed direct from India to Lisbon. From that moment the proud consort of the Adriatic began to enter on her widowhood. (*Bibby Line Gazette*, Dec., 1927.)

AGASTRIA

A case has recently been described in a German medical paper of the total absence of the stomach in a woman aged thirty, which condition was only discovered when she was subjected to gastro-intestinal radiography because of abdominal symptoms following three weeks after appendicectomy. The opaque meal passed through the œsophagus and to the right, where it filled out a rounded structure, and a skiagram taken six hours later showed that the colon ran diagonally across the abdomen. Laparotomy showed the structure on the right side to be an enormously dilated duodenum. There was no stomach, and the dilatation of the duodenum was apparently due to arterio-mesenteric occlusion. The case appears to be unique in medical literature, and is of importance inasmuch as for thirty years the patient had sustained life without a stomach.—*The Medical Press and Circular*, Jan. 11, 1928, 25.

Abstracts from Current Literature

MEDICINE

Relationship of Acute Infections to Glomerular Nephritis. Longcope, W. T., O'Brien, D. P., McGuire, J., Hansen, O. C., and Denny, E. R., *J. Clin. Invest.*, Dec., 1927, v, No. 1.

Although the problem stated in the title of this paper is one which is under continual discussion, we have not much definite information on the factors involved. The evidence collected by a number of observers tends to show that in a considerable number of cases acute diffuse glomerular nephritis is preceded or accompanied by some streptococcal infection, and especially by tonsillitis. Not a few observers, however, have been inclined to accord small importance to the streptococcus, or indeed to any other known bacteria, as the cause of nephritis. They admit the frequent association between streptococci and nephritis, but do not regard this micro-organism as the cause so much as some other unknown factor.

The present study furnishes additional evidence that acute streptococcal infections are a frequent cause of glomerular nephritis. The investigation was guided by the consideration that if such infections as tonsillitis, sinusitis, etc., were the direct cause of the nephritis, then it might be expected that the progress of these infections would bear some relation to the course of the nephritis. In other words, when the infection subsided, the nephritis might be expected to improve, provided the kidney itself was not infected; whilst, on the other hand, if a chronic nephritis developed it would probably be found that the infection persisted in the focus originally found.

The material studied consisted of forty cases of acute or subacute glomerular nephritis in young adults, in 27 of whom the disease was under observation for periods of some months to four years. Some of the patients were seen within a few days of the onset of their disease, and some developed under observation. Infection such as tonsillitis, sinusitis, broncho-pneumonia or scarlatina, was found to precede or accompany the nephritis in 85 per cent of the cases. In the other 15 per cent no focus of infection could be detected, in spite of the most searching examination (post mortem was performed in two cases). The most frequent type of infection was tonsillitis. The prevailing infective organism was the hæmolytic streptococcus. The evidence of a relationship between infection and nephritis was therefore very strong.

Observations were also made on the relation between the course of the infection and the stage of the nephritis. Ten cases amongst those that were constantly observed, apparently recovered from the acute nephritis, and in nine of these, recovery coincided with disappearance of the infecting organism from the focus responsible. On the other hand, twelve cases under constant observation became chronic nephritics, or died, and in ten of these the infection and the nephritis ran a parallel course. No evidence could be obtained to show that the streptococcus caused the nephritis by actual invasion of the kidney, judging by the fact that blood and urine cultures were constantly negative.

H. E. MACDERMOT

The Effect of General Irradiation with Ultra-violet Light Upon the Frequency of Colds. Maughan, G. H., and Smiley, D. F., *J. Prev. Med.*, Jan. 2, 1928, No. 1.

It has been shown before by Dr. Smiley that there is a definite reciprocal relation between the incidence of acute respiratory infections and the average daily amount of sunshine in the day: these conclusions were the result of records kept over a period of twelve years in the case of about four thousand male college students in Cornell University. With these observations in mind the present study was undertaken to see if it was possible to reduce the frequency of colds by general irradiation of the body with the mercury vapour lamp.

The authors point out that a considerable

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amount of evidence is available to show how beneficial this treatment is, the few reports to the contrary probably being due to the fact that excessive degrees of light were used. If the irradiation is too intense the result may be unfavourable to maximum growth.

Calculations were made which showed that a ten-minute exposure at a distance of thirty inches, for ten minutes once a week, provided as much ultraviolet light as the ordinary city dweller gets throughout a whole summer. The distance of thirty inches ensured getting the longer, rather than the shorter or heat rays. The length of time for treatments began with two minutes for each side of the body, and was increased one minute for each side at successive treatments, until five minutes was reached. Exposures were not given for any longer period than this.

The results in the four groups of persons treated (58 in all) showed a marked reduction in the frequency of colds. The results were arrived at in one group by comparing those receiving irradiation with control groups who received none, and in the other groups by having them compare the number of colds they had during the winter in which they received treatment, with the number they had in previous years.

H. E. MACDERMOT

La Malariathérapie à Saint-Jean-de-Dieu. (The Malaria Treatment at Saint-Jean-de-Dieu). Richard, R., *L'Union Médicale du Canada,* 1928, ii, 73.

In this article the author gives the results at the Hospice Saint-Jean-de-Dieu for the insane, at Longue Pointe, Que., of the application of Von Jauregg's treatment for general paresis of the insane by the inoculation of malarial parasites.

Gertmann, who has collected the statistics, gives the following figures: in 2,336 cases, there was complete remission of the mental symptoms in 27.5 per cent; partial remission in 26.5 per cent; no improvement in 46 per cent.

Thirty-one cases were treated by this method at the Saint-Jean-de-Dieu hospital during the last year. The clinical diagnoses were supported by the approved laboratory tests. Some patients were in an early stage; others were more advanced. The malarial organisms were injected intravenously, 3 c.c. of blood with 2 c.c. of a 2 per cent solution of citrate of soda being employed. A transient elevation of temperature (up to 102°) was commonly observed on the same or the following day. During the malarial chill the temperature often reached 109° but this hyperpyrexia did not last long. At first the patients were allowed to develop only eight or nine paroxysms; later, with increased familiarity with the subject on the part of the physician, twelve or fourteen attacks were permitted. A diminution of the red corpuscles to 25,000,000 per c.mm. and of the hæmoglobin to 45 per cent was the signal to terminate the malaria by means of quinine.

It was found that the changes in the cerebrospinal fluid produced by the treatment were inconsiderable. The Wassermann test remained present; the colloidal benzoin test remained positive.

Complete remission of the mental symptoms was found in 7 (22.5 per cent); partial remission in 9 (29.3 per cent); unimproved 12 (38.7 per cent); died, 3 (9 per cent). One death was due to superacute mania, which resisted all efforts at control. One death was probably due to the acute exacerbation of a chronic nephritis, which presented no signs at the time of inoculation. The third death occurred one month after the completion of the treatment, from acute mania, having no apparent connection with the special medication.

A. G. NICHOLLS

Incidence of Rheumatism, Chorea and Heart Disease in Tonsillectomized Children. Kaiser, A. D., *J. Am. M. Ass.,* Dec. 31, 1927, lxxxix, 2239.

The problem of the control of heart disease in children depends very largely on our knowledge of the etiological factors in chorea, rheumatic fever and other infections which are generally assumed to precede involvement of the heart valves. The frequency with which sore throats precede these infections brings the tonsil under suspicion as the portal of entry, and it is important therefore to collect all the available evidence to determine whether it is beneficial to remove the tonsils in these infections, and also whether the operation will serve as any protection against developing rheumatism and heart disease in the future. Opinions differ as to the effect of tonsillectomy on *recurrences* of rheumatic disease, but there have been no very extensive observations as to the prophylactic value of tonsillectomy in this disease.

Dr. Kaiser, therefore, has collected records of two groups of children, in 20,000 of whom the tonsils had been removed, and in 28,000 of whom there had been no tonsillectomy. In these two groups it was found that there had been altogether about 1,200 who developed signs of rheumatic fever, chorea or heart disease, and an analysis of these gave the following results:—

Rheumatic fever, joint pains or "growing pains" occurred in both groups; 8 per cent of the tonsillectomized had rheumatic manifestations, as against 10 per cent in the other group; but many of the former had had rheumatic symptoms before tonsillectomy.

As the result of this investigation it would

appear that the tonsillectomized child who has not had any of these infections has a better chance to escape them than the child whose tonsils have not been removed.

Chorea was found to occur only very slightly less often in the tonsillectomized children than in the others, 0.4 per cent as compared with 0.5 per cent. The incidence of heart disease, however, was decidedly less in the first group.

Scarlet fever was found to occur in 7.6 per cent of the tonsillectomized children, and in 16 per cent of the others. Again it was found that where there was accompanying heart disease it was less marked in the children whose tonsils had been removed.

Rheumatic heart disease was found in 450 of the tonsillectomized children, and in 817 of those not operated on. A careful analysis of 478 cases of heart disease showed that the condition developed before tonsil removal in 83 per cent, and after tonsillectomy in 17 per cent.

Dr. Kaiser remarks that while there is evidence that tonsillectomy does ensure a certain degree of prevention of rheumatic manifestations, his study of these large groups of children has been somewhat disappointing. Perhaps, the most definite conclusion that at the present date can be drawn is that tonsillectomy is of most benefit to those children who are exhibiting early symptoms, and it is the history of the child's infections, which should determine when the tonsils are to be removed.

H. E. MACDERMOT

La Prémunition ou Vaccination Préventive des Nouveau-nés Contre la Tuberculose par le B C G. (The Protection or Preventive Vaccination of New-Born Children against Tuberculosis by the Bacillus Calmette-Guérin). Calmette, A. *Annales de l'Institut Pasteur*, Jan., 1928, i, 1.

This is a communication by Professor Calmette, with the collaboration of Drs. Guérin, Boquet, and Nègre, in which the statistics and results of this form of vaccination, in which all the profession are so greatly interested, are given for the period extending from July, 1924, to December 1, 1927.

The general mortality in France of infants under one year has never been less than 8.5 per cent. The mortality from tuberculosis in infants belonging to this age-period is 0.13 per cent. In the case of infants, belonging to the same group, but who were born of tuberculous mothers, and, therefore, specially exposed to the specific infection, the death rate from affections presumably tuberculous was as high as 24 per cent. Between the ages of one and four years the mortality from tuberculosis is about one-half of the figure just given.

During the period under review 52,772 children were vaccinated with "B. C. G." at their birth. Of these 6,219 were born of tuberculous mothers or were living under great risk of infection. A total of 5,749 children, vaccinated during the first year of life, were followed up as to their subsequent history. In these the death rate from all causes was 3.1 per cent. In 3,808 vaccinated children, living in close contact with tuberculous cases, the mortality from presumed tuberculosis was 0.9 per cent. Children vaccinated at birth, and observed during the age-period of from one to 3½ years, numbered 1,941. In them the general death rate was 1.2 per cent. The death rate from presumed tuberculosis in the same series was 0.2 per cent.

These figures, comprising a large number of observations, and carefully analyzed, indicate the great value of the procedure in the skilled hands of Dr. Calmette and his associates. The immunity lasts at least five years. The effects of the vaccination, including its relationship to the tuberculin reaction, are fully discussed. Numerous charts add to the lucidity of the study.

A. G. NICHOLLS

Ultraviolet Rays and the Small-pox Eruption. Bénard, H., Camus, L., Carnot, P., and Teissier, P., *Comptes rend. d. la Soc. d. Biol.*, xcv, 1546-8.

The authors find that ultraviolet rays have the effect of destroying vaccinia virus *in vitro*; and the reaction of tissues which have been vaccinated is modified by subsequent exposure to ultraviolet rays, in such fashion that the eruption may entirely fail to appear or at least be much attenuated.

These facts led them to examine the influence of the rays on the small-pox eruption. They found that the radiation had no deleterious effect on the patient. When applied at the stage of suppuration the rays had no effect on the further development of the eruption; but when the lesions had not gone beyond the papular stage an attenuation of the rash and of cicatrix formation resulted. It is hoped to apply this information to the prevention of facial and other pock marks by prophylactic ultraviolet radiation.

It was suggested by Finsen some years ago that red light would prevent scarring in small-pox, but this was not borne out by experiments made in this country. Our recent knowledge of ultraviolet light shows, however, that the only error in Finsen's suggestion lay in his recommending the red instead of the ultraviolet end of the spectrum. It will be remembered that, in an epidemic of chicken-pox at Leysin, Dr. Rollier found that the rash avoided the parts of the skin that were freely exposed to the sun. (*Rev. Brit. J. Actinotherapy*, Jan., 1928, ii, 186)

XUM

SURGERY

The Gall Bladder and Its Infections. Moynihan, Sir Berkeley, *Brit. M. J.*, Jan. 7, 1928.

Following a discussion on the physiology of the gall bladder the author goes on to state that infections of the organ may be primary or secondary. Primary infection is rare and is connected with a solitary cholesterin stone, which in itself is formed aseptically and has an origin different from all other stones. Secondary infections are far more frequent and may reach the gall bladder by different paths, arriving there in the blood stream, in the bile, in the lymph, or by invading the walls of the viscus by direct extension from neighbouring viscera.

By the blood stream the route of infection may be either arterial as in septicæmia, or venous. Rosenow's contribution to our knowledge of hæmatogenous cholecystitis, in which certain bacteria have an "elective affinity" for tissues like those from which they were originally derived, very often can be demonstrated clinically. Such organisms reach the gall bladder by the blood stream.

In considering the lymphatic route there is abundant evidence to show that a very definite hepatitis is frequently an antecedent of cholecystitis. The condition of the gall bladder wall further supports the view that the lymph stream is the avenue of infection because the outer coats are, as a rule, more seriously affected than the inner, while the whole thickness of the gall bladder wall contains organisms more frequently than the bile. As pointed out first by C. H. Mayo there is further evidence in the early involvement of the lymphatic system as evidenced by enlargement of the cystic lymphatic gland.

Infection may reach the interior of the gall bladder through bile descending from the liver and the author believes that the infective agent which reaches the gall bladder by this route is derived from the portal system. The most common site of infection drained by the portal system is the appendix. This, coupled with the fact that it is rare to find solitary inflammatory affections of the stomach, duodenum, pancreas, liver, gall bladder, or appendix, and that, when one of these shows disease, one or more of the others is likely to be implicated, is further evidence that portal drainage is a factor in disseminating the infection.

It is also important to remember the possibility of organisms within the portal current being derived from the spleen. The association of diseases of the liver, and of gall stones, with diseases which originate or have their chief development in the spleen, has recently become clearer. The association of hæmolytic jaundice with cholelithiasis is well established.

To sum up the conclusions as to infection, cholecystitis seems as a rule to be a part only of an infection which has its origin elsewhere and is commonly associated with a hepatitis which is of earlier origin.

The conclusion as to the pathogeny of stones in the gall bladder appears to be as follows: infection reaches the gall bladder, particularly the outer coats, the result being that the activities of the viscus are enhanced, the lymphatics engorged and the activity of the excretory or osmotic functions of the mucosa augmented. There is a "cholesterol flood" with increased absorption of cholesterol resulting in a hypercholesterolæmia. If the lymphatics in a further stage become blocked and the mucosal activity continues, deposits of lipoid or crystals of cholesterol occur in the mucosa (strawberry gall bladder). This condition after a time leads to the casting off into the gall bladder lumen of villi filled with lipoid material and results in the formation of stones. The author believes that the prevention of cholelithiasis must be sought in a study of changes earlier than any with which we are yet familiar.

The author discusses the early symptoms of cholecystitis, stressing flatulence and fullness after meals, great epigastric discomfort which may involve the right side also or pierce through to the back, early satiety during a meal, a feeling that when a small meal is taken the stomach is overfull. There is sometimes an unaccountable nausea, described very often as a sensation of "sea sickness." None of these early symptoms is severe and none striking. It is in association and persistence rather than in individual character that their importance lies. He goes on to discuss the indications for operation.

R. V. B. SHIER

Suppurative Diseases of the Chest. Muller, George P., *Surg., Gyn. & Obst.*, Feb., 1928.

Suppurative diseases of the chest may be grouped as: (1) empyema; (2) lung abscess; (3) bronchiectasis; (4) mediastinitis.

Empyema is the most important suppuration in the experience of most surgeons. It is practically always the result of pneumonia. There are three matters of paramount importance: (1) To recognize the probability of empyema in every case of pneumonia that does not get well promptly and to remember that often delayed resolution, so-called, means empyema. (2) To distinguish between synpneumonic and metapneumonic effusion where operation should be delayed if possible until the pneumonia has resolved. (3) The need for discrimination and individualization in the technical aspects. The anæsthetic should be local anæsthesia with sometimes a little gas. Inter-rib puncture should be regarded as a temporary measure only and used in an effort

to improve the patient's condition only, the experience of most surgeons being that open drainage is required sooner or later in most cases. Early, adequate, dependent drainage is essential to success. Chronic empyema is an end-result of delay and inadequate treatment. If drainage is insufficient the temperature and x-ray picture furnish the guides.

Abscess of the lung is a more serious affection than empyema. At least 30 per cent are post-operative in origin and about one-half of these follow the operation of tonsillectomy. The author believes that both lobar pneumonia and broncho-pneumonia are forerunners in certain cases.

An interesting group, however, is the lesion produced by septic emboli from any infection discharging into the general circulation. Cutler and his associates have established the fact that most lung abscesses after tonsillectomy result from septic emboli, just as do those after operations on other parts of the body. The diagnosis of lung abscess rests on the character of the sputum in the case of a patient with cough, fever, and chest pain, but well taken x-ray pictures afford a very clear-cut evidence. Needling should never be used as a diagnostic aid because of the danger of producing pyothorax.

The treatment of lung abscess requires perfect localization, a nicety of judgment, and careful technique. The internist, roentgenologist, surgeon, and, if possible, the bronchoscopist should work in conjunction. Perhaps 30 per cent will get well and stay well under rest, postural drainage, and bronchoscopic aspiration, but the author is skeptical of the value of bronchoscopic aspiration alone.

With regard to the operation the author has found that in simple abscess it is best to resect a portion of one or two ribs over the area of abscess without opening the pleura. The wound is packed with gauze saturated with mercurochrome solution and the skin flap temporarily closed. Four or five days later the wound is re-opened and the abscess opened by the cautery. The opening should be large and the cavity carefully drained and cleaned with the suction aspirator. The drainage tube should be kept in place for many months, particularly if there is bronchiectasis, otherwise there are "flare-ups" requiring re-opening of the incision. All accessory pockets should be adequately drained. The author has entirely given up the older method of suturing the lung to the parietal pleura as a preliminary step in the operative treatment of these cases.

The surgical treatment of bronchiectasis has not yet been placed on a secure basis. Pneumothorax is not satisfactory and intrathoracic lobectomy is too hazardous. The operation of cautery incision advocated by Graham (1923) is a great improvement and consists in a wide exposure by the excision of three or four ribs for distances of about four inches, the cut ends being packed with bone wax and the adjacent intercostal nerves injected with alcohol, and the pleura opened by means of a small incision. If adhesions are not present, the cut is closed and the wound packed for a few days. The bronchiectatic cavities are opened by means of a soldering iron heated to a red heat. It is essential to cauterize to obtain multiple drainage openings by exposing a large cross-section of the bronchial tree. Cauterization is repeated in about 3 weeks and hæmorrhage is controlled by means of packing.

Suppurative mediastinitis is the last group under consideration. The condition may be traced to the adjacent bones, the lymph nodes, and as an extension from neck operations, or as part of a streptococcic empyema. If the abscess is in the anterior mediastinum, the approach for drainage is fairly easy but, if in the posterior mediastinum, one must choose between cervical mediastinotomy and the dorsal approach, preferably by the method of Heidenhain.

R. V. B. SHIER

ANÆSTHESIA

Anæsthesia in Thyroid Surgery. Dunhill, T. P., *Proc. Roy. Soc. Med.*, 1928, xxviii, 345.

In certain very difficult cases when the patient can only breathe when sitting up with the head bent forward and cannot be put in such a position that the intratracheal catheter can be passed, chloroform may be the best anæsthetic. When respiration is hampered, the irritation caused by ether may cause death. In colloid goitres intratracheal anæsthesia is best. In exophthalmic goitre, ether or nitrous oxide and oxygen, with or without the addition of some ether, may be used, provided the surgeon does not attempt too much, is reasonably skilful and quick, and the patient has not too much mental unrest. The writer uses local anæsthesia when there is auricular fibrillation.

W. B. HOWELL

Spinal Anæsthesia. Schutz, C. B., *Surg., Gynæc. & Obst.*, 1928, xlvi, 281.

The writer gives his experience of spinal anæsthesia in 2,251 operations. The drug used was apothesine. The great advantage of the method in abdominal surgery is the complete muscular relaxation obtained. He uses spinal anæsthesia in practically all cases of intestinal obstruction. The relaxation of the abdominal wall makes it comparatively easy to return distended bowel into the abdomen. If an operation is going to be of long duration it is well to begin it under spinal anæsthesia and to

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continue under nitrous oxide and oxygen when sensation begins to return. The only definite contra-indication is a systolic blood pressure below 100. The writer, however, has used the method when the blood pressure was between 90 and 100 without bad results. Spinal anæsthesia puts a greater strain upon the heart than ether or nitrous oxide gas. Highly apprehensive nervous patients are not good subjects. Apothesine is considered by the writer superior to stovaine, novocaine or scurocaine. It causes an immediate fall of blood pressure with slow shallow respirations and weak pulse. Generally there is prompt accommodation of the cardio-vascular system, so that the only measure required is to put the patient in the Trendelenberg position. Vomiting or retching occurred in practically all the writer's cases at some time or other during the operation. The best treatment for this complication was found to be the inhalation of oxygen. The apothesine is dissolved in 10 c.c. of cerebro-spinal fluid withdrawn by means of a syringe. There were fifty-seven failures. In one out of every eight cases hypodermic injection of caffeine and adrenalin was necessary for the treatment of minor symptoms. In 2 per cent of cases, the symptoms were sufficiently serious to require the intravenous injection of saline with glucose. The writer puts all his patients in the Trendelenberg position immediately after the injection to counteract the fall in blood pressure. Sequelæ, such as incontinence of urine and fæces, and paræsthesia of the legs were common, but were transient.

W. B. HOWELL

Obituaries

Dr. John Ernest Affleck died at Nelson on February 24th. He was born at Glasgow Station, Ontario, thirty-eight years ago; he graduated in medicine from McGill University in 1916, and immediately went overseas with the medical corps where he rendered excellent service and was decorated with

DR. JOHN ERNEST AFFLECK

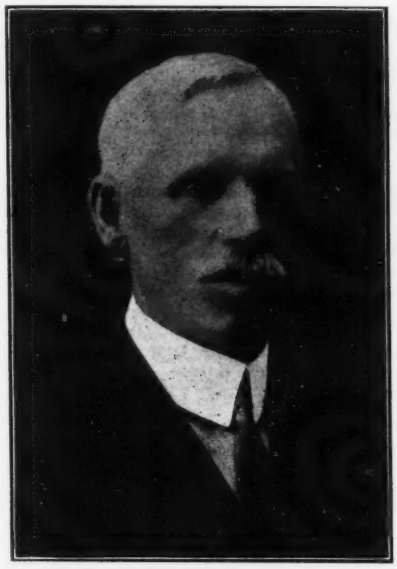
the Military Cross and a bar. Returning to Canada in 1920 Dr. Affleck established himself at Penticton, B.C., where he practised for six or seven years with Dr. R. B. White. Dr. Affleck was held in the highest esteem in Penticton, and had a host of friends. He took a keen interest in public affairs in Penticton and for some time was president of the Board of Trade in that town. His decision to leave Penticton in order to qualify himself for specialist work and thus escape the arduous duties of a general practitioner was deeply regretted, although his friends realized that the malady from which he suffered would not permit him to continue the heavy work of a general medical practice. Early last year he went to Montreal and Vienna, taking courses for a specialist in eye, ear, nose and throat work. His remains were accorded a military funeral at Nelson. Besides his wife he leaves two small daughters.

Dr. A. D. Aubry, died at his residence recently, in his 78th year. He was born at St. Hermas, Que., and received his preliminary education at Ste. Therese College, and graduated in medicine from the University of Montreal. Some years after his graduation he was appointed attending physician to the Sisters of the Congregation and held that position for 42 years. He was greatly interested in miltary affairs, having been connected with the Revised Board and with the formation of the Laval Overseas Hospital and held the rank of Lieutenant-Colonel. He practised medicine in Montreal for almost half a century.

Dr. James A. Massey, a graduate of Toronto in 1892, died in New Mexico on February 21st, where he had lived for over 30 years. Born in Guelph in 1871 Dr. Massey had wandered far, seeing service with the British forces in India and with the Rough Riders in the Spanish-American war; he also was for many years, surgeon general of the state of New Mexico.

Dr. Morton D. McEwen, who was one of the best known and most picturesque personalities in the Similkameen, died at Princeton, B.C., on February 24th. He was born at Toronto in 1869, and graduated from the University of Manitoba in 1897. Dr. McEwen was the first Superintendent of the Vancouver General Hospital and had charge of the first x-ray machine in the west. In 1905 he moved to Hedley, B.C., and was located there till the time of his death. Dr. McEwen enlisted for service in France in the Great War. He was stationed at one time at No. 2 General Hospital, and in April, 1918, was in the front line with the Imperial troops. Dr. McEwen was an enthusiastic supporter of the British Columbia Medical Association. He had a host of medical friends in Vancouver who will feel his loss keenly. Besides his wife he leaves two small children.

Hon. J. W. Armstrong, B.A., M.D., C.M., one of Manitoba's pioneer physicians passed away at his home, in Winnipeg, on February 26th. Dr. Armstrong was born at Kingston, Nova Scotia, in 1860 and was brought up on a farm at Annapolis. Graduating from Acadia College, Wolfville, he came west and taught for



HON. J. W. ARMSTRONG, B.A., M.D., C.M.

a year on the collegiate staff at Brandon. He then entered the recently organized Manitoba Medical College and graduated M.D., C.M., with honours in 1893. After a year's post-graduate work in King's College, London, he began practice at Gladstone where he lived for twenty-two years.

The aptitude for public life which so often distinguishes the sons of Nova Scotia was shown in Dr. Armstrong. In 1907 he was elected to the provincial legislature in the liberal interests. When the Norris government was formed in 1915 he was appointed Provincial Secretary, a department which included public health and municipal affairs.

AN APPRECIATION BY HON. DR. R. S. THORNTON

Under Dr. Armstrong's regime the functions and scope of action of the Board were widely extended and made more serviceable to the health of the community. He inaugurated the plan of District Health Nurses, the first to be established in any province and since adopted by other provinces in the Dominion. The District Health Nurse has become a most valuable factor in the community life.

My first intimate acquaintance with the late Dr. Armstrong began in 1908 when we met as fellow members of the Legislature of Manitoba and formed a steadfast friendship which continued throughout the succeeding years.

As a physician he was highly efficient, careful and thorough in all his work, and animated by a high sense of devotion to duty which endeared him as a family physician to a large circle of friends.

As an administrator, he was thoroughly conversant with conditions throughout the province, and always zealous for the humanitarian measures directly affecting the physical and social welfare of the people. He brought to his work business ability, good judgment, and tenacity of purpose with a readiness to consider all aspects of whatever matters came before him for decision and action.

As a man he was a true and loyal friend, with a keen sense of honourable dealing with all with whom he came in contact.

He was a splendid type of pioneer physician and has left a wholesome impress in the district where for so many years he made his home.

Dr. A. C. Campbell died in St. Thomas on February 18th in his 52nd year. Born at Fennhill he had come to Elgin County when a child, attended St. Thomas public schools and collegiate institutes and had graduated from the medical school of Toronto University in 1900. Like the subject of the previous obituary notice, Dr. Campbell was a member of a family that turned easily to medicine and he had lived and practised with his two uncles Dr. Duncan and Dr. Colin McLarty. After his graduation Dr. Campbell studied in Dublin and London where he developed his surgical technique, returning to St. Thomas he quickly became a busy practitioner and a hard working surgeon, known for his diagnostic ability. A year ago he was forced to give up work but seemed to have completely recovered after an extended holiday; a few months of activities however, proved too great a strain and he died within a few hours after an apoplectic stroke. J. D. CURTIS

Dr. Arthur H. Paget, one of the oldest members of the medical profession and himself the son of one of the early practitioners of Ontario, died at Toronto early in February in his 95th year. Dr. Paget had come of old medical extraction, his grandfather Dr. William Paget having been surgeon in the 48th Regiment when that regiment was stationed in Canada in 1761. Dr. Paget's father, Dr. Robert Paget began practice in Thornhill in 1837.

Dr. Arthur Paget graduated at the University of Victoria College in Cobourg in 1858 and had practised for more than 60 years in the neighbourhood of Elora. After his many years of practice he moved to Toronto where he lived to the time of his death in very good health.

Dr. C. A. Toole died in Port Dover on February 18th. Dr. Toole was a graduate of Trinity Medical College in 1886 and had practised in Parry Sound district, Brussels and Selkirk before going to Port Dover. In addition to his medical activities Dr. Toole took active interest in municipal affairs and for many years was a member of the Board of Education.

Dr. Robert James Wade, of Brighton, died at Wellesley Hospital, Toronto, on February 24th, in his 67th year. Dr. Wade graduated from Trinity Medical College in 1888, and completed his medical education by taking post-graduate courses in the hospitals of New York and in those of London. He then returned to his home town, Brighton, where he practised his profession for thirty-eight years. In his earlier days he took an active part in public life and had the distinction of being the youngest man who ever became warden of the United Counties of Northumberland and Durham. For years he was medical officer of health, and represented the Department of Soldiers Civil Re-establishment for his district. He is survived by his wife, and one son who is at present a medical student in Queen's University.

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News Items

GENERAL

The Sidney Rawson Wilson Prize—As announced in the January number of the *British Journal of Anæsthesia*, for the best Inhalation Anæsthesia Research Effort, worthy of a premium, carried out by a citizen of the British Empire between the present date and December first, 1928, a prize of Fifty Pounds is offered.

Every competitor is expected to conform to the following regulations:—

1. To forward to the Secretary of the *British Journal of Anæsthesia*, Ainsdale, Palatine Road, Withington, Manchester, on or before the first day of December, 1928, a typewritten report of his or her work, in triplicate, with a *nom de plume* thereon, and also accompanying same a sealed envelope having the same *nom de plume* inscribed on the outside and his or her name and address within.

2. All competitors assign to the *British Journal of Anæsthesia* all rights of publication.

3. The *British Journal of Anæsthesia* reserves the right to decide if any effort received is of a sufficiently high grade to warrant the award.

The Faculty of Medicine of Strassbourg University, in association with the Anti-tuberculosis Association of Alsace and Lorraine and similar bodies, announces a course of lectures, demonstrations, and clinics on the subject of tuberculosis and respiratory diseases.

The course includes two parts: the first, organized by and under the direction of Dr. E. Vaucher, will take place at Strassbourg and various sanatoria in the neighbourhood from October 8th to 25th. A number of distinguished specialists, representing the university, the district sanatoria, and hospitals, the sanatorium at Davos, the Health Service of the City of Strassbourg, with pathologists, urologists and radiologists, will take part in an interesting and most comprehensive programme.

The second part consists in a trip to Leysin, Switzerland, organized by the physicians of the Climatic and Heliographic Station there. This will last from October 26th to November 1st.

A charge of 350 francs will be made for the complete course, but no charge will be required of those attending the purely theoretical parts of the programme.

Those visiting Leysin will receive free transportation on the Aigle-Leysin Railway, and free accommodation at the Leysin Institution.

Applications should be made, as soon as possible, to Dr. E. Vaucher, 8 Quai Finkwiller, Strassbourg, France.

First International Oto-Rhino-Laryngological Congress.—Eye, ear, nose and throat doctors of the world will meet for the first time at the First International Congress of the Oto-Rhino-Laryngological Society, to be held in Copenhagen, Denmark, July 29th to August 1st. More than seventy-five specialists will represent the United States at the Congress. These doctors will also spend some time visiting various large cities in France, England, Germany, Norway and Sweden. Clinical discussions will be held in these countries with European doctors presiding. The *S.S. Caronia* of the Cunard Line will leave early in July and members of the Congress may enjoy a trip through the principal medical centres of Europe before meeting in Copenhagen.

The Congress will concern itself with questions relating to the treatment of the many maladies, injuries, and infections of the eye, ear, nose and throat. It has been reported from abroad that very successful methods have been found for the treatment of sinus trouble and middle-ear deafness.

The Fifth International Medical Congress for Industrial Accidents and Occupational Diseases is definitely announced to be held in Budapest, Hungary, September 2-8, 1928. National committees have been formed in the principal countries. Dr. Fred. H. Albee, New York City, and Dr. Emery R. Hayhurst, Ohio State University, Columbus, both members of the Permanent International Committee, have been appointed Joint Chairmen of the National Committee for the United States, and have appointed Dr. Richard Kovacs, New York City, as Secretary. The Travel Study Club of American Physicians, of which Dr. Albee is President and Dr. Kovacs, Secretary, has re-arranged its summer trip for 1928 specially to focus upon the Budapest Congress.

Correspondence regarding the trip should be addressed to the Secretary, Dr. Richard Kovacs, 223 E., 68th Street, New York.

The sudden death, at Cannes on the Riviera, of Miss Mary Davies recalls a heroic deed of the War that takes high place among the many noble sacrifices made by research workers among the medical profession.

The youngest daughter of Sir R. H. Davies, at one time Lieutenant-Governor of the Punjab, Miss Davies during the summer of 1915 was working at the American Hospital, Neuilly, Paris, as a bacteriologist, under Dr. Taylor, of the Imperial Cancer Research. Dr. Taylor was then investigating the cause and possible cure of gas gangrene. He was experimenting with guinea pigs, but was unable to obtain results which would allow him to apply his conclusions to human beings. The crucial experiment of inoculating a human being with a pure culture of the bacillus was desirable, but this, of course, appeared to be impossible. Miss Davies, who had studied bacteriology at the Pasteur Institute, had seen about 209 fatal cases of gas gangrene and had seen guinea pigs die, and also recover, under Dr. Taylor's experiments. Without revealing her intention, she took a room near the hospital, and one day Dr. Taylor received a note from her, asking him to come at once and make "last experiments." He found that she had given herself two deep injections of the culture of the bacillus, in the muscles of each thigh, and had thus furnished him with a pure case of gas gangrene.

Dr. Taylor promptly injected the antidotal preparation of hydrochloride of quinine with which he had been working. Miss Davies was removed to the American Hospital and in twenty-four hours she was pronounced out of danger. By her extraordinary self-sacrifice in taking the risk of a painful and lingering death (for no amputation would have been possible) she had proved the efficacy of the cure and had thus saved thousands of lives.

It was her desire that the cure should be used as a preventive measure, and, with this object, she wrote a monograph showing that if the Government cloth issued for military uniforms was treated with hydrochloride of quinine the infection of gas gangrene might be obviated. —(Abs. *The Weekly Times*, February 23, 1928.)

NEW BRUNSWICK

The January-February number of "Prevention" issued by the Department of Health of New Brunswick contains a timely reference by Dr. G. G. Melvin to the necessity for purifying drinking water. He points out that three typhoid epidemics occurred in the province since last summer. Two of these rose from polluted municipal water supplies and the other from the use of wells in absence of other water supply. Dr. Melvin points out that steps were taken in each case to deal with the situation, but urges that more active steps should be aken for preventing a recurrence of such epidemics in the future.

Dr. J. V. Anglin presented the report of the Provincial Hospital for the Insane to the Legislature at Fredericton on February 23rd. The features of interest in the report were; an increase in the total expenditure for 1927 as compared with 1926; the annual cost per patient increased from $259.08 in 1926 to $272.68 in 1927; 190 patients were admitted during the year; there were under care 928, the daily average being 741.

Militia Orders announce the appointment of Major D. C. Malcolm, M.C. to the command of No. 1 General Hospital. The same order announces his promotion to the rank of Lieutenant-Colonel.

Dr. C. C. Alexander, who has been a patient in the Chipman Memorial Hospital, St. Stephen, for the last two months, returned home this week. He has been seriously ill with blood poisoning, but his condition is now satisfactory.

During the present session of the New Brunswick Legislature it has been necessary for Hon. Dr. H. I. Taylor, Minister of Health, to ask for leave of absence from his legislative duties, on account of the lack of physicians in Charlotte County where he has practised for many years. The territory which comprises Dr. Taylor's practice is a large one, many villages being scattered along the irregular coast line, which makes practice at this point very arduous.

Dr. H. A. Farris, Saint John County Hospital, reported to the Board of Commissioners that he has secured the affiliation of the Charlottetown Hospital with the Saint John County Hospital for the purpose of training their nurses in the care of tuberculous patients. This means that the Saint John County Hospital has now affiliation with training schools in Nova Scotia, New Brunswick and Prince Edward Island.

Dr. J. V. Anglin, during the past month, addressed the Rotary Club in Halifax, and also the Rotary Club in Saint John on some of the higher aspects of the true Canadian spirit. The press reports of Dr. Anglin's address in Halifax were extremely complimentary.

Mrs. Sarah Elizabeth Rowley the mother of Dr. W. E. Rowley of this city died in Augusta, Ga., on March 8th.

The extra-mural course of lectures was continued in February by a team of speakers from Montreal, who addressed meetings at Moncton, Saint John, and Fredericton. The attendance at these meetings was quite satisfactory, especially considering the handicap imposed on attendance by poor roads. Dr. F. H. Patch discussed the problems in connection with the prostate. His address contained much that was new and his remarks on the control of hæmorrhage following operation were well received. His discussion of the question of the one-stage or two-stage operation was of special interest to many local surgeons.

Dr. C. C. Birchard presented the clinical picture and treatment of coronary thrombosis. Dr. Birchard's appearance in the Maritimes was his first, and it is hoped both these gentlemen will return at a time when they can visit many other centres in New Brunswick.

On March 14th Dr. H. A. Farris lectured at Sussex under the auspices of the Public Health Association.

Dr. A. E. Logie of Saint John has been critically ill with pneumonia. It is reported that he is now safely over the worst of his disease.

Dr. G. G. Melvin and Dr. H. A. Farris were in Halifax recently in connection with the Maritime Tuberculosis Educational Committee. A. STANLEY KIRKLAND

QUEBEC

"The tendencies of scientific members of the bar and alienists are in the direction of having punishment or rather adjustment to fit not only the criminal, but criminology," Dr. F. E. Devlin, superintendent of the St. Jean de Dieu Hospital for the Insane, declared, when speaking of law and psychiatry before a gathering of some forty doctors and alienists at the opening meeting of the Association of Doctors of Mental Hospitals. Amongst the ideas prevalent he felt that inasmuch as they were concerned with the problem of crime, they should consider as well the protection of society by the rehabilitation of the criminal. For the past thirty years psychiatry has shown extraordinary progress and day by day new fields are opening. Alienists must co-operate with the law in order to abolish crime. Alienists admit to-day that the man who is arraigned in court for the third time and for the same crime should be mentally examined. Crime to-day is a problem that is hard to solve, but alienists are doing much to abolish it.

Tribute to a McGill graduate, the Hon. J. H. King, a medical man who has risen high in the life of the country while also serving his profession, as Minister of Health and head of the Department of Soldiers' Civil Re-Establishment at Ottawa, was paid by upwards of three hundred students of the Faculty of Medicine, McGill University and members of the teaching staff at the 46th annual medical dinner of McGill Undergraduate Society held in the Mount Royal Hotel. In his address Dr. King stated that a medical man finds little difficulty in getting into politics and, as a popular figure in every community he can always choose between a life of devotion to his profession, or to his country. Dr. King pointed to the fact that, in 1925, out of 248 members in the Dominion House, 39 were practising physicians. The party organizations in fact, seek them out, for they are generally popular candidates.

A survey of health conditions in the city of Montreal is being sponsored by a group of representative business and professional men, at the request of the Montreal Anti-Tuberculosis and General Health League.

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The survey will be comprehensive, covering all official and voluntary health agencies working in the city. Drs. C. F. Martin and L. deL. Harwood, deans of the Medical Faculties of McGill and Montreal Universities, are acting as technical advisors to the committee.

For the purpose of the survey, the Health League places its staff at the disposal of the Committee and defrays the expense. The Committee on Administrative Practice of the American Public Health Association will act as consultants for the survey, and so will not only bring their accumulated experience to the local committee, but will make possible the use of their Appraisal Form.

It is expected that the survey will give a true picture of Montreal's health conditions. A comparison will be made with other similar cities in order that Montreal citizens may see how local conditions compare with conditions that exist elsewhere. Finally, a series of recommendations that are considered necessary and practical for Montreal will be made, in order that Montreal citizens may know what must be done and the cost of doing it, if they desire to attain to the health conditions existing in other cities.

Ste. Justine Hospital reported progress in every branch of its work at its 20th annual meeting. During 1927 some 2,437 cases were treated. During the year the department of radiology was enlarged, and fitted with new equipment, making it possible to give 6,218 treatments. A laboratory of pathological anatomy has been installed on the top floor of the new wing. An obstetrical department with twenty beds will be ready for occupancy shortly and this means that the student nurses will not have to go to the Hospital de la Miséricorde for their obstetrical training. Owing to the opening of the new wing a few months ago, the staff of eighty nurses will be increased to one hundred and twenty-five. The financial statement for 1927 showed a deficit of $15,732.

At the annual meeting of the Women's Hospital this year was acclaimed as one of its most successful. The capacity of the hospital has been increased from 75 to 225 beds since moving from the old premises on St. Catherine Street west to the building on Tupper Street. Dr. H. L. Reddy, superintendent of the hospital, announced that 1,669 patients had been treated during the last year. Of this number 834 had been public and non-paying. The cost per day of each patient was $3.20. Dr. Reddy spoke particularly of the maternity section of the hospital, where, out of 660 babies born, the mortality rates were only .3 per cent, and the majority of these had been still-born. The cost of erecting the new hospital, Dr. Reddy said, had been paid with the aid of the Provincial Government and the subscriptions secured during the campaign of last year, but the institution was still short of funds to pay for the equipment.

"Up to date additional employees in the Health Department have been placed chiefly where they were most urgently needed," Dr. S. Boucher, Director of Public Health, stated, when commenting on the reorganization of the department, "but it is our intention to bring the whole department up to the highest possible state of efficiency. We have already appointed our bacteriologist, with several assistants and ten new milk and pasteurization inspectors."

The sum of $6,476.92 was realized at the Charity Ball, held on January 12th in aid of the work of the Auxiliary Board of the Royal Victoria Montreal Maternity Hospital. Much valuable work for the benefit of the out-door cases and public patients was done by the Auxiliary Board in 1927. The work undertaken by it has been divided into three sections: an out-door committee to assist in the care of the out-patients at the clinics; a clothing committee to supply baby clothes to the social service department; and a house committee to look after the welfare of the staff and in-patients.

The hope was expressed at the annual meeting of the Royal Victoria Hospital that the Province of Quebec will shortly implement its promise to allocate a more liberal portion of the proceeds of the Charity Tax to the large English-speaking hospitals in this city in order to assist in defraying their unavoidable operating deficits. W. R. Chenoweth, Superintendent of the Royal Victoria Hospital, in presenting his report, pointed out that during the hospital year ending December 21, 1927, the number of patients admitted was 13,685 as compared with 11,892 the previous year, an increase of 1,793, or 15 per cent. Of this number, 10,132 were resident in Montreal and 3,553 came from districts outside the city. Patients discharged during the year numbered 13,686. The operating cost per day, based on charging the indoor patients the full cost of maintenance (excluding the outdoor departments) was $6.40 per private patient and $4.55 per public patient.

The following resolution of sympathy on the death of Mr. Charles Hosmer was passed by the Board of Governors and duly recorded in the minutes: "Resolved: That the Board of Governors of the Royal Victoria Hospital desire to express their great sorrow at the death of their colleague, Charles R. Hosmer, who was elected a Governor in 1906. In the death of Mr. Hosmer, the Royal Victoria Hospital has lost a warm friend and benefactor, a keen and interested adviser to the Governors in the development of their ideals for the relief of the suffering poor. His memory will always be held by his associates in the highest esteem."

"It is with the deep sense of gratitude," the report continues, "that we record the following bequests to our Endowment Fund during the year, and for which suitable resolutions were passed by the Board of Governors in grateful acknowledgement; the late Lady Strathcona, $121,000; the late Charles Hosmer $100,000; the late Samuel L. Nathanson, $1,000. Mr. McConnell was elected a governor of the hospital to fill the vacancy occasioned by the death of the late Charles R. Hosmer. The appointment of W. R. Chenoweth as Superintendent was confirmed by the board.

GEORGE HALL

ONTARIO

At a regular meeting of the Norfolk County Medical Society held on the evening of February 15th, the following officers were elected: President, Dr. Julian S. Boyd, Simcoe; Vice-President, Dr. A. B. Jackson, Simcoe; Secretary-Treasurer, Dr. E. S. Copeman, Simcoe.

The Lambton County Medical Society met at Sarnia, on February 22nd, and the following officers were elected for the ensuing year: President, Dr. G. Gray, Sarnia; Vice-President, Dr. J. R. M. Martin, Oil Springs; Secretary, Dr. W. D. Logie, Sarnia. After the business meeting, Dr. A. P. Hart, of Toronto, gave a very interesting and practical paper on "Infant feeding."

On February 9th, at a meeting of the Peterborough Medical Society, Dr. Oskar Klotz of the University of Toronto gave a talk on "Recent advances in medical research."

At the March meeting of the Peterborough Medical Society, Dr. A. Primrose of Toronto gave an address on "Tumours of the breast."

On February 16th, at the regular meeting of the Hamilton Medical Society, Dr. Andrew Hunter gave an address on "Blood chemistry in modern medicine." On February 23rd, Dr. W. A. Scott of Toronto addressed the Society on "Head injuries—diagnosis and treatment."

The Sudbury Medical Society met on February 17th. Dr. F. W. Hipwell of Toronto gave a talk on "Diabetes."

On February 21st, at a meeting of the Welland County Medical Society, Dr. F. F. Tisdall of Toronto gave an address on "Some common errors in the diagnosis of acute conditions in infancy."

At a meeting of the Kent County Medical Society held at Chatham on February 23rd, the following programme was presented: "Goitre," Dr. J. W. Ross, Toronto. "The clinical aspects of jaundice," Dr. Wm. Magner, Toronto.

On February 23rd, at a meeting of the Brant County Medical Society held at Brantford, Dr. M. H. V. Cameron gave an address on "Chronic mastitis."

The North Waterloo Medical Society met in Kitchener on the evening of February 24th, when an address was given by Professor E. F. Burton of the Department of Physics, University of Toronto, on "Colloids in relation to life processes."

At a meeting of the St. Thomas Medical Society held on February 24th, Dr. J. C. McClelland of Toronto gave a paper on "Abdominal pain from genito-urinary conditions."

The Niagara District Medical Society met at Niagara Falls on January 11th. Dr. John Oille of Toronto gave a talk on "Common disorders of the heart."

The Halton County Medical Society which has recently been organized, held a meeting at Milton on the evening of January 12th. Dr. H. S. Hutchison of Toronto gave a paper on "Renal disease."

The South Waterloo Medical Society met at Preston on the evening of January 12th. An illustrated address on "Fractures of the hip" was given by Dr. C. S. Wright of Toronto. Dr. Wright also gave a brief talk on "Infantile paralysis."

Dr. D'Arcy Frawley of Toronto addressed the Lincoln County Medical Society on January 19th, his subject being "Puerperal sepsis.

The Kent County Medical Society met at Chatham on January 19th, when the following programme was given: "The examination of the nervous system," Dr. G. A. McLarty, Toronto; "Back pain," Dr. C. S. Wright, Toronto.

The Haldimand County Medical Society met in Cayuga on the evening of January 20th; the following programme was given: "Pneumonia and empyema," Dr. Norman B. Gwyn, Toronto; "Diabetes in pregnancy," Dr. Huerner Mullin, Hamilton. At the close of the scientific session, a short business meeting was held, at which the following officers were elected: President, Dr. Herbert Walker, Dunnville; Vice-President, Dr. K. C. W. Dean, Caledonia; Secretary, Dr. Chas. F. Abbott, Dunnville.

At a meeting of the Brant County Medical Society held at Brantford on January 26th, Dr. Geo. S. Young of Toronto gave a talk on "Headache."

Dr. Duncan Graham, Professor of Medicine, University of Toronto, visited the Hamilton Medical Society on February 2nd, giving an address on "The diagnosis and treatment of pernicious and other anæmias."

The Essex County Medical Society met at Windsor on February 7th, Dr. V. J. Harding of the Department of Chemistry, University of Toronto, gave an address on "Blood chemistry."

On the evening of February 8th, Dr. R. G. Armour of Toronto, addressed the North Bay Medical Society on "Diagnosis and treatment of borderland mental cases."

N. B. GWYN

MANITOBA

The following appointments to the Honorary Attending Staff of the Children's Hospital of Winnipeg have been announced: Medical Indoor Service, Dr. F. G. Schwalm; Medical Outdoor Service, Dr. A. V. Sykes; Chest Clinicians, Drs. Bruce Chown and John M. McEachern.

The fine Nurses' Home of St. Boniface Hospital was formally opened by His Honour the Lieutenant-Governor on February 29th. Following this, there was a reception of the many friends of the hospital. The building, 135 by 118 feet, of reinforced concrete skeleton construction with white brick walls and Tyndall stone trimmings, accommodates 166 nurses. It is five storeys in height, with a high basement which includes a room for basket ball. A tunnel connects the Home with the Hospital. There are two pleasant reception rooms, lecture rooms, a room for the teaching of dietetics, and another for the teaching of chemistry and physics. The two dining rooms are arranged on the cafeteria system and contain electric refrigerators of monel metal.

A fine ambulance, built by Studebaker, and the last word in comfort and convenience, has recently been put in operation at the Winnipeg General Hospital.

The Winnipeg Medical Society at its regular monthly meeting on March 16th, presented the following programme: "The effect of anæsthetics on red bloods cells" by Dr. W. Webster, discussed by Prof. A. T. Cameron; and "Burke and Hare and the resurrectionists," by Dr. A. J. Douglas. The following new members were elected: Drs. K. J. Backman, B. A. Victor, and J. P. George.

A meeting of the North Western District Medical Society was held at Neepawa on February 28th, in the new Masonic Temple. Papers were given by Dr. Ross Mitchell, on "The prevention of maternal mortality in Manitoba," and by Dr. M. R. MacCharles, on the "Modern treatment of accessible malignancy." Dr. T. W. Shaw, of Russell, occupied the chair.

Dr. F. W. Jackson of Wawanesa has been appointed by the Welfare Supervision Board under the direction of the Minister of Health to undertake a survey of health conditions in Manitoba.

The Winnipeg Health League has been active, and as a result the membership is now upwards of 700. An exhibit similar to that held last year, but on broader lines, and including communicable diseases, foods in-

cluding milk, and periodic health examinations, in addition to special hygiene, will be held about the end of April or beginning of May. Among the speakers who have given addresses under the auspices of the League are Prof. F. W. Jackson, Drs. D. C. Aikenhead, W. Chasney, Digby Wheeler, A. T. Mathers, O. J. Day, H. M. Speechly, and Nurse D. E. Street.

Dr. J. D. Adamson and Dr. D. S. McKay left Winnipeg on March 10th, to tour the Maritime Provinces in the interests of the British Medical Association meeting to be held in Winnipeg in 1930. Following this, Dr. Adamson, who is secretary of the Local British Medical Association Committee, will join Dr. T. C. Routley, Secretary of the Canadian Medical Association, in England and will be present at the British Medical Association meeting in Cardiff. With Dr. Alfred Cox, Secretary of the British Medical Association, and others they will discuss arrangements for the Winnipeg meeting two years hence.

The Board of Trustees of the Winnipeg General Hospital announce the appointment of Dr. F. L. McKinnon as an Associate in Gynæcology.

Dr. N. G. Trimble, formerly of Dauphin, and Dr. L. R. Shier, formerly of Gilbert Plains, have opened offices in The Pas where there is much activity on account of the building of the new railway to the Flin Flon Mine.

The many friends of Dr. D. A. Stewart are pleased to know that he is able to return to his duties as Superintendent of the Manitoba Sanatorium at Ninette after a recent illness.

At the regular monthly luncheon at the Miséricordia Hospital on March 13th, Dr. Donald McKenty presented an interesting case of Addison's disease.

The clinical luncheons at St. Boniface Hospital are now being held on the second and fourth Thursdays of each month. The programme at the last two luncheons included "Tuberculosis of the kidney" by Dr. M. R. MacCharles; "Nephrosis" by Dr. A. Hollenberg; "Orthopædic cases" by Dr. A. P. MacKinnon; "Gynæcological cases" by Dr. C. R. Rice, and "Urological cases" by Dr. E. J. Boardman. ROSS MITCHELL

SASKATCHEWAN

Regina General Hospital.—The Regina General Hospital estimates for 1928, totalling $358,636 have been passed by the Board. Of this, the city contributes $50,000, the provincial government $52,000, patients $252,636.

Last year 5,403 patients were admitted, 2,744 operations were performed, 447 babies born, 256 males, 191 females, 6 pairs of twins. The new wing which increases the bed capacity by 79 is now open. Within a week of its opening it was filled to capacity.

New Sanatorium at Prince Albert.—For the past months, both the Sanatorium at Saskatoon and the one at Fort Qu'Appelle have been crowded to capacity and have had a large waiting list.

Owing to the fact that the death rate in the north was 197 for the last three years as compared to 186 in the south, it was decided to build a third sanatorium at Prince Albert. This will be completed in 1928 but additions within five years will more than double the now projected size. The Anti-Tuberculosis League is maintained by contributions from 214 rural municipalities, by contributions from 72 per cent of the urban municipalities and by a grant from the provincial government. Less than 10 per cent of patients treated can pay their own way.

Campaign against Diphtheria.—The Regina City Health authorities are beginning work on testing the school children for susceptibility to diphtheria. Two years ago a campaign was put on which inoculated many thousand children against diphtheria. This was followed by a marked lowering of the incidence of the disease but new children coming in from outside and younger children starting school are filling the schools again with non-immunized children. The former work will be checked up and all positive reactors immunized. Parents not wishing to have their children done may request this in writing. LILIAN A. CHASE

The Regina and District Medical Society had its regular monthly meeting following a dinner at the Kitchener Hotel, on March 7th. Dr. C. R. May gave a paper on "Nitrous oxide and oxygen anæsthesia," the discussion following being led by Dr. Alport and Dr. Beaudoin.

Dr. J. M. Ogilvie has moved his office from Lake Lenore to Humboldt.

Dr. E. A. Jutras has opened an office at Sisieux; he was formerly practising at Montmartre.

Dr. M. D. Mitchell has opened an office at Piapot. He is a graduate of Manitoba, 1927.

Dr. R. C. Bridge, a graduate of Manitoba, 1923, has commenced practising at Assiniboia.

Dr. W. G. Thurston, a graduate of McGill, 1923, has started practising at Caron.

Dr. E. J. Skafel is practising at Kamsack; he is a graduate of Manitoba, 1927.

Dr. I. E. Brouse is now practising at Tuxford.

Dr. P. Coodin has begun practice at Sceptre.

It is probable that during the month of May there will be a tour of Saskatchewan under the extra-mural post-graduate course. A second tour is anticipated in July when two outstanding pædiatricians will visit Saskatchewan. Medical men are asked to co-operate and make these tours an outstanding success by having selected clinical material at the hospitals in order that bedside clinics as well as lectures may be held.

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BRITISH COLUMBIA

British Columbia Medical Association

At a recent meeting of the Executive of the British Columbia Medical Association the following members were nominated to the council of the Canadian Medical Association: Dr. H. E. Ridewood, President; Dr. Theo. H. Lennie, Secretary-Treasurer; Dr. J. W. Arbuckle, Dr. G. T. Wilson, Dr. F. M. Bryant, Dr. A. W. Bagnall, Dr. W. A. Clarke, Dr. H. M. Robertson.

The legislative committee has for some time been negotiating with the Provincial Government for higher fees for coroners, and medical men who as medical witnesses were doing autopsies and serological work, and in cases where mileage was incurred. It is satisfactory to learn that the Attorney-General has agreed that the fees generally are too small, and has promised that he will take up with the Executive Council the question of changing the Act this Session.

At an executive meeting, held recently, the question of co-operation with the Vancouver Medical Association was fully discussed, and a resolution was passed that a committee be appointed to arrange a meeting with the committee of the Vancouver Medical Association; also that Dr. T. C. Routley, General Secretary of the Canadian Medical Association be advised of the whole matter and asked for his opinion. A lengthy letter on this subject has now been received from Dr. Routley containing valuable suggestions which are being considered by the special committees of the two Associations. It is hoped that a concrete scheme may be submitted in the near future.

At this meeting the Secretary-Treasurer read letters from the Canadian Medical Association *re* the coming spring and autumn post-graduate tours. An autumn tour will be carried out on lines similar to those which were followed last year. The speakers for the autumn will be Drs. A. T. Bazin and A. H. Gordon, of Montreal, and Dr. Gordon Bates of Toronto. Two local men will also be members of the team.

Representations were made to the executive regarding the loss suffered by hospitals owing to the disallowance of hospital stay in accident cases by the Workmen's Compensation Board. This is not a matter with which the executive feels justified in interfering, but it was decided to draw special attention to the following two points and urge our members to exercise due care in this regard: (1) that the patient's stay in hospital must be justified under the Act on the grounds of actual necessity, and not on account of any home or other conditions; (2) that reports should be made with sufficient detail to show clearly the necessity of such stay in the hospital.

The question of more publicity and educational work was brought up and the desirability of repeating the Health Week of a few years ago. A lengthy discussion took place, in which it was pointed out that many radio talks had been given during the last two years, which had been greatly appreciated. The duty of bringing some scheme into action for health publicity and education in hygiene, other than lectures and radio talks, was left to the committee.

Vancouver Medical Association.—The monthly regular meeting of the Vancouver Medical Association was held on February 7th, with an attendance of fifty-nine members. Drs. J. R. Neilson and F. Day Smith were elected to membership. The Committee on Hospitals through the Chairman, Dr. H. H. Milburn, reported on its work in regard to the re-organization of the Vancouver General Hospital Staff, a scheme for a Metropolitan Hospital Area, and the hospital bed-shortage in Vancouver. The papers of the evening were given by Drs. Hugh Macmillan and R. E. Coleman, who reported on some recent original work done by them in connection with carbohydrate metabolism in connection with major operations. These papers will be published later in the *Vancouver Medical Association Bulletin.*

One of the best meetings of the year was the February clinical meeting put on by the laboratory staffs of the Vancouver hospitals. Short papers on important laboratory tests were read by Drs. H. W. Hill, L. H. Appleby, J. M. Pearson, A. W. Hunter and J. E. Campbell, and practical demonstrations followed. The papers also will be published later in the *Bulletin.*

The 1928 Summer School of the Vancouver Medical Association will be held on June 5th, 6th, 7th, and 8th. This rather early date has been chosen so as not to interfere with the Canadian Medical Association and the Pacific Northwest Medical Association meetings. The speakers will be Dr. Joseph Colt Bloodgood, of Baltimore; Dr. John Phillips, of the Cleveland Clinic; Dr. Andrew Hunter, of Toronto University, and Drs. F. H. MacKay, F. A. C. Scrimger and C. A. Peters of Montreal. The last four speakers are coming to Vancouver through the courtesy of the Canadian Medical Association. The meetings will be held in the Hotel Georgia and a very successful session is anticipated.

Dr. F. J. Nicholson retired from practice on March 1st.

Dr. W. H. Hatfield, who is associated in practice with Dr. Lyall Hodgins, has left for the east for post-graduate study. He will spend some time at the Mayo Clinic and expects to be away from Vancouver for about two months.

Dr. R. deL. Harwood has resumed practice after a stay in the east for post-graduate work. He is now associated with Dr. G. S. Gordon in urological work.

Dr. Thomas H. Lougheed of Vancouver has been appointed Medical Officer at Blubber Bay, B.C.

Dr. T. M. Jones, of Victoria, and Dr. Kingsley Terry, of Blubber Bay, have recently been appointed as assistants to Dr. C. R. Marlatt of Powell River, B.C.

A branch of the Association of Officers of the Medical Services of Canada will be formed in Vancouver, according to a decision reached at a recent dinner meeting of the mess of the 18th Field Ambulance. Officers elected were: Chairman, Lieut.-Col. A. M. M. Warner, O.C. 18th Field Ambulance; Secretary, Lieut.-Col. M. T. Lockhart, M.O., 15th Field Brigade; Executive: Major D. G. Perry, Major A. B. Schinbein, Major C. H. Bell and Capt. G. H. Clement.

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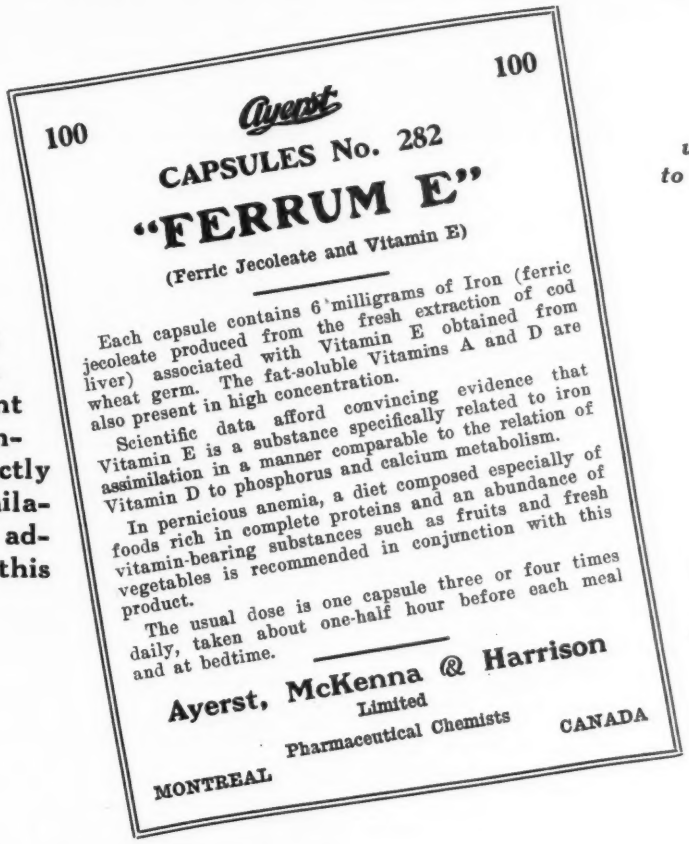
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UNITED STATES

Annual Graduate Fortnight of the New York Academy of Medicine.—The New York Academy of Medicine is making arrangements for a series of lectures at the Academy; co-ordinated clinics, clinical demonstrations and courses in hospitals and teaching institutions of New York, on the general subject of "The problem of aging and of old age."

This is to be the first of a number of "Annual Graduate Fortnights" which the Academy is arranging for the benefit of general practitioners and specialists, and will take place the first two weeks of October, beginning October 1, 1928. A number of outstanding authorities will be invited to take part and particular emphasis will be placed upon lectures and courses on the early recognition and prevention of disturbances, commonly ascribed to ageing, but very often not the result of aging but its cause. Courses on functional tests of organs and systems of function, such as circulation, digestion, metabolism, endocrine functions, immunity, etc., are to be offered and the relation of unrecognized forms of intoxication, chemical as well as bacteriological, to the dangers of middle-age are to be specially emphasized.

It is planned to have each year a subject chosen for the Annual Fortnight which is of outstanding importance in the practice of medicine and surgery, and which will be approached from every available angle, with the least loss of time and the greatest possible opportunity to be offered to physicians from out of town.

No fees will be charged, except possibly, where certain special courses are arranged for by medical schools and teaching hospitals, but, in any case, they will be nominal.

The Stanford University Medical School offers a special summer course for graduates of medicine, to be given between Monday, July 2nd and Saturday, July 14, 1928, consisting of a series of forty lectures and demonstrations covering various fields of medicine, surgery, obstetrics, pathology and pharmacology in their clinical aspects.

A detailed programme will be sent on request to anyone interested on application to the Dean, Stanford University Medical School, 2398 Sacramento Street, San Francisco, California.

Book Reviews

Intra-cranial Tumours and Some Errors in Their Diagnosis. Sir James Purves-Stewart, K.C.M.G., C.B., M.D., Senior Physician to the Westminster Hospital, etc., London. Oxford University Press, 1927.

This monograph of some two hundred pages is based upon material collected for the preparation of a presidential address to the Section of Neurology of the Royal Society of Medicine, 1926. One hundred and seventeen verified intra-cranial tumours are discussed in such detail as to make an exceedingly valuable contribution to this most interesting subject. To these are added the histories of four cases in which the clinical signs and symptoms simulated those of intra-cranial tumours but were subsequently proved otherwise. The first chapter is devoted in a general way to symptoms and pathology of brain tumours. In dealing specifically with the one hundred and seventeen cases the author groups them anatomically and quotes *in extenso* the histories of illustrative cases. Valuable criticism of these cases, which cover a period of thirty years, is made. On the whole, the picture of intra-cranial tumours is gloomy: the majority of the patients died but on occasions surgical interference was crowned with brilliant results. The lessons to be drawn are that every case must be studied with painstaking exactitude, that localization is essential for successful treatment and that in certain cases brilliant surgical results may be achieved.

FREDERICK BRODIE

Growth of Our Knowledge of Heart Disease. R. O. Moon, M.A., M.D., F.R.C.P., Consulting Physician to the Royal Waterloo Hospital. 86 pages. Prices $1.40. Longmans, Green & Co., Toronto, 1927.

Why does history interest us so deeply? It must be largely for the same reasons that we are interested in growth and change of any kind. There is a difference of course between watching the history of living matter as shown in its development, and following the growth of a science. In the one case we are fascinated by the mystery of the forces which govern the orderly shaping and patterning, but in the other we feel that here is something in which we can take part ourselves, and little as we understand the influences at work even here, we feel more qualified to criticize and suggest alternatives. We may even, in the latter case, enjoy (however much we are unconscious of doing so) a certain sense of superiority, for it is easy to forget that we are looking back at facts which are lighted up for us by torches which we did not kindle.

So that whilst we uncritically watch the growth of living tissues, we are apt to wonder at the slowness with which our knowledge of this growth has developed; and in no respect are we more liable to indulge this critical attitude than in the growth of our knowledge of the heart. We wonder, for example, that it was not until Harvey that the circulation of the blood was completely understood. How was it that Galen could know that the heart expanded and contracted, that it threw blood into the aorta, that the arteries contained blood, and yet could not see the whole cycle of the circulation?

Dr. Moon shows us how difficult it is now to realize what heart disease meant to medical men before the discovery of percussion and ausculation. "Well might Portal, Professor of Anatomy in Paris, say in 1803 that it was to be feared that doctors could not distinguish between different diseases of the heart: it was much if they could recognize at all that the heart was diseased." And yet these diagnostic methods tempted men for some time to direct their attention away from the consideration of the heart muscle itself, though Laennec himself was able to see that here lay the real "key to cardiac pathology." It is doubtful if we have yet learnt to properly discount the meaning of murmurs in the life of the heart. Not until then will it be possible to make what Dr. Moon indicates as the next great step in our knowledge, namely, the power to estimate the functional efficiency of the heart.

H. E. MACDERMOT

Nasal Neurology, Headaches and Eye Disorders. Greenfield Sluder, M.D., F.A.C.S., Clinical Professor and Director of the Department of Oto-Laryngology, Washington University School of Medicine, St. Louis. 428 pages, 167 illustrations. Price $12.50. St. Louis: C. V. Mosby Co. Toronto: McAinsh & Co., 1927.

This is an interesting book of Sluder's personal clinical observations, especially in regard to the cocainization of the nasal ganglion followed by the injection of ½ c.c. 5 per cent phenol in 95 per cent alcohol, with the relief of a multitude of symptoms.

RESEARCH

"RESEARCH:—*Careful or critical inquiry or examination in seeking facts or principles; diligent investigation in order to ascertain something; as, antiquarian, literary, or scientific research.*"
—(*Webster*).

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In the introductory remarks Jonathan Wright gives an account of the method of bone-formation (osteoblastic activity) and bone-absorption (osteoclastic activity), which in some instances occludes the outlet of the sinuses or impinges on the nerves, giving rise to symptoms which Sluder describes in detail.

The purpose of the essay is to describe six varieties of nasal disease or clinical pictures which have as symptoms; headache; more or less eye disorder; neurological phenomena, that are evidently of nasal origin or are controllable by nasal treatment, to wit, (1) closure of the frontal sinus without suppuration; (2) anterior ethmoidal (nasociliary) neuralgia; (3) the syndrome of nasal ganglion neurosis (lower half headache); (4) the picture of hyperplastic post-ethmoidal-sphenoidal inflammation; (5) some neurological phenomena that are apparently not of nasal origin and are controllable by nasal treatment; and (6) orbital phlegmon. In order to arrive at a satisfactory explanation, the anatomy of the nose, the relations of the sinuses and the location, relations and connections of the sphenopalatine (Meckel's) ganglion are given in the appropriate chapters.

Vacuum frontal headaches occur as result of closure of the frontal sinuses by a combination of unfavourable anatomical settings, plus hyperplastic changes in the soft parts and the bone. Six causes are enumerated; the pathology, the diagnosis, the prognosis, and the treatment are given. In like manner, all the subjects are agreeably outlined so that the reader can get a concise picture at a glance. The chapter on nasal ganglion neurosis deals fully with the symptoms arising from lesions affecting the nasal ganglion ,and the treatment in vogue by the author is clearly outlined. Because of the intimate association of the many nerve trunks in the region of the body of the sphenoid many symptoms result, which are carefully specified by the author in the chapter on hyperplastic sphenoiditis.

Under the heading of some neurological problems in rhinology cases of many writers are cited, where pain in the eye, ear, tongue, the head and neck, were relieved by injection of the nasal ganglion, as were also spasm of the glottis, hiccough, asthma, and photophobia. After considerable speculation as to the reason for the results, especially in regard to the behaviour of the sympathetic, the author does not venture to give a solution of the riddle, but puts down four outstanding items. (1) The widespread referred pain, which seems to be undoubtedly from the nasal ganglion; (2) the control, by means of the nasal ganglion, of pain which seems irrelevant to the nasal ganglion; (3) the control, by means of the nasal ganglion, of motor phenomena which seem irrelevant to it; (4) the control of pain in one branch of a nerve by anæsthetizing another branch at rest.

The surgical procedures in hyperplastic sphenoiditis and the maxillary antrum are outlined in detail. A few observations concerning orbital abscesses are cited, and many case histories are submitted to conclude the treatise.

Bibliographical references and an index complete this work, which should reach the hands of all, especially the ophthalmologist, the neurologist, and the oto-laryngologist. ARTHUR W. YOUNG

Common Disorders and Diseases of Childhood. George Frederic Still, M.A., M.D., Hon. LL.D., F.R.C.P., Professor of Diseases of Children, King's College, London. Fifth edition. 1032 pages, illustrated. Price $9.00. Oxford University Press. Toronto: McAinsh & Co., 1927.

Any discussion of the author's chapters on infant feeding is extremely difficult, because the reviewer finds so few points in common between present day teachings on this continent, and the author's beliefs. Modification of cows' milk by dilution and addition of fat and carbohydrate to approximate the percentage composition of human milk is very fully described and the use of whey and cream mixtures, tending to make the feeding of a normal baby—which should be a comparatively simple procedure—into one of considerable difficulty. Peptonization and alkalization of cows' milk to alter curd formation, rather than boiling and acidifying, is advised. The boiling of milk as an anti-tuberculous measure is advised, but acidifying is not mentioned. Dried milk and the butter flour mixture of Czerny and Kleinschmidt, commonly called "butter soup" on this continent, are mentioned. Condensed milk and the patent foods are described and their shortcomings pointed out. The chapter on common faults and fallacies is, as in previous editions, excellent, and the advice there given could well be pondered by all who have to do with the feeding of infants. One might disagree with the author's beliefs regarding the size of feedings and their frequency and composition, but the common faults found in the manner of prescribing feedings and the lack of attention to detail are well brought out. Infantile marasmus is discussed, and treatment outlined which is at variance with teaching on this continent.

The chapters on rickets and scurvy have been enlarged and brought up to date with our newer knowledge of nutrition. The chapter on hypertrophy of the pylorus in infants is excellent—though the author believes that medical treatment still has a place in its therapy.

As the title indicates the author discusses the common disorders and diseases of childhood, chiefly their diagnosis and treatment, in a most readable manner, and with keen clinical judgment, and illustrative cases from his vast experience, and with excellent style. The discussion of symptoms, such as vomiting and diarrhœa, is to be commended in the teaching of students to whom this book is heartily recommended. The reviewer knows of no other text-book in pædiatrics the reading of which gives him as much pleasure and profit. The quiet, intimate, conversational style of Dr. Still could well be imitated by many. R. R. STRUTHERS

Feeding the Child, From Two to Six. Mary Frances Hartley Barnes, former Dietitian of Tabor Academy Montessori Camps and Woodibrook Farm Camp, with introduction by Richard M. Smith, M.D. 206 pages. Price $2.75. Toronto: Macmillan Co., 1927.

This book is planned, says the foreword, to supplement the doctor's instructions to the mothers and nurses who have in their care the child from two to six years of age. The chapter on the fundamental principles of child feeding contains some excellent advice on regularity, habits, habit training and methods of varying the menu. Subsequent chapters contain lists of foods which may be used and specimen meals outlined for each month of the year, various combinations of the food suggested, the methods of preparation, and their caloric values. The appendix contains height and weight tables, lists of food having special vitamine values and suggestions for parental reading.

As Dr. Richard M. Smith states in the introduction "Any mother can safely use this book and be reasonably sure that her child's requirements in quantity and kind of food will be adequately met and that unless there is some physical or mental condition which prevents the operation of normal processes, growth in height and weight will go forward and produce in the end a well-developed child."

The book is another addition to the library of books on the training of parents in parenthood.

R. R. STRUTHERS

Cultivating the Child's Appetite. Charles Anderson Aldrich, M.D., Associate Attending Physician, Children's Memorial Hospital, Chicago. Foreword by Clifford G. Grulee, M.D. 127 pages. Price $2.00. The Macmillan Co. of Canada, Toronto, 1927.

In this excellent book the author has tackled in a very capable manner the treatment of the child who

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refuses to eat, and the even more difficult problem, *viz.*, the treatment of the parents of the child who refuses to eat.

The terms "hunger" and "appetite" are defined in a clear, non-technical and original manner; the psychological and physical causes of anorexia are discussed and the author's method of handling various types of cases is given in detail.

The book is written, not only for the guidance of physicians but also for the education of parents and can be read with advantage by either. The pædiatrician particularly will find the work absorbingly interesting and instructive and he will save himself much future worry by recommending it to the parents of difficult feeding cases.

E. A. MORGAN

Feeding and the Nutritional Disorders in Infancy and Childhood. Julius H. Hess, M.D., Professor and Head of the Department of Pædiatrics, University of Illinois. Fifth edition, revised. 566 pages, illustrated. Price $5.00. F. A. Davis Co., Philadelphia, 1927.

The author presents in a concise and lucid manner the current views on infant feeding. The book contains a wealth of information of a most practical nature. The chapters on maternal nursing, methods of feeding premature infants, feeding after the first year and the contents of the appendix are particularly useful. The author's remarks are conservative, with occasional exceptions, such as his recommendation of the intravenous use of insulin and glucose in the treatment of malnourished infants, a procedure which is not without its dangers. It is unfortunate that the table on page 20 of the Vitamine Content of Various Foods is not up-to-date. Fat soluble A and the anti-rachitic vitamine have been grouped as one. We know that the distribution of these two vitamines is not identical and in view of the importance of the antirachitic vitamine in infant feeding, it is unfortunate that its distribution has not been given in detail. The author has attempted the impossible task of condensing our present knowledge of the general metabolism of infants into some twenty-five pages at the beginning of the book. With these few minor criticisms, this book can be recommended as a sane and useful presentation of a somewhat difficult subject.

F. F. TISDALL

X-Rays and Radium in the Treatment of Diseases of the Skin. George M. MacKee, M.D., Professor of and Director of the Department of Dermatology and Syphilology, New York Post-Graduate Medical School and Hospital. Second edition. 788 pages, illustrated. Price $10.00 net. Lea & Febiger, Philadelphia, 1927.

This, the second edition of this work by MacKee, follows very much along the lines of the original edition and is a most welcome addition to the library of the dermatologist.

Roentgentherapy is probably the most widely used individual agent in the treatment of skin disease. As MacKee says, progress in dermatology during the past decade has been spectacular, and this advancement has been caused partly by the evolution of cutaneous roentgentherapy and the researches of MacKee in a large measure, have been responsible for this.

In this edition the work has been revised and modernized. New chapters on spectroscopy, ionization methods of measurement, and long-wave-length roentgentherapy have been added. Many new illustrations and charts have been added to the original work. There is a very close co-relation between the clinical treatment of skin diseases and the application of x-rays and radium, so as to render this book essentially practical to the physician interested in this department of medicine.

This classical work is of great value to the roentgenologist and dermatologist who have occasion to deal with the treatment of skin diseases.

J. F. BURGESS

The Normal Diet. W. D. Sansum, M.S., M.D., F.A.C.P., Director of the Potter Metabolic Clinic, Santa Barbara, Cal. Second edition, 136 pages. Price $1.50. St. Louis, C. V. Mosby Co.; Canada, McAinsh & Co., Toronto, 1927.

This small volume is an attempt on the part of Dr. Sansum to present the basic principles of a "normal" diet in simple terms, for "the mutual use of physicians and patients." The material covered is first dealt with in a theoretical manner, supplemented by specific diets illustrating the point discussed. Most established requirements, as well as a few doubtful ones, are dealt with.

The author's personal opinions are unduly stressed, especially upon points that are far from proved. This is well shown in a chapter upon "The Acid-Ash Type of Acidosis," in which the following statement is found: "The more common symptoms of the acid-ash type of acidosis are malaise, etc., and, I believe, the blood vessel disease which is responsible for high blood pressure."

Throughout the work one feels that Dr. Sansum's own opinions are frequently presented to the patient in a light which is not justified by proved facts. In all books primarily written for the patient, as in point, it would appear important that only knowledge of proved worth should be presented. Doubts and theories should be "threshed out" within the profession.

EDWARD H. MASON

Percival's Medical Ethics. Edited by Chauncey D. Leake, Associate Professor of Pharmacology, University of Wisconsin. 289 pages, illustrated. Price $3.00. The Williams and Wilkins Co., Baltimore, 1927.

In the hurry and scurry of modern life, and with the remarkable change that has come over medical practice and the relations of the medical man to the general public, it is difficult to remember that there is such a thing as medical ethics, and still harder to put its tenets into practice. It is true that a few perfunctory lectures are given on the subject in medical colleges, but where personal advantage comes in conflict with the Golden Rule (which medical ethics really embodies) the initial impression for good is apt to be a fleeting one. The little book under review is, therefore, timely and welcome. In estimating a man's character, it has been said that he should be depicted as he appears to himself at his best. Whether this principle be just or not, there can be no doubt that it has been applied to a profession in the existing codes of medical ethics. Inasmuch as it is good for the soul to "see oorsels as ithers see us," it is pleasant to note that the author, though an associate professor of pharmacology, is not a medical man. He is in a position, then, to administer a corrective that is salutary, albeit a gentle one.

Dr. Thomas Percival, of Manchester, England, studied at Edinburgh, and received his doctorate in medicine from Leyden in 1765. Before his time the old "Hippocratic oath" was well-known, and its provisions were accepted, but in a somewhat visionary way, as a guide to the conduct of medical men. An unfortunate dispute arose between the medical staff and the trustees of the Manchester Infirmary, and Percival was asked to draw up some rules that would help to prevent such occurrences. This he did in his Medical Ethics, which appeared in 1803. Thomas Percival was, therefore, the first modern to draw up "a code of institutes and precepts, adapted to the professional conduct of physicians and surgeons," The book is now quite a rare one, and Prof. Leake has done good service, not only to the cause of medical ethics, so-called, but to that of the history of medicine as well.

In addition to Percival's own work, which, of course, takes up the greater portion of the book, the work is enhanced by a useful preface, and introductory essays on Ethics and Medical Ethics; The Moral

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Regulation of Physicians by Civil Authority; The Moral Regulations of Physicians themselves; Thomas Percival; and the Influence of Percival's Medical Ethics.

The codes of ethics of the American Medical Association for 1847, 1903, and 1912 are printed among the appendices. The first of these was a direct outcome of Percival's work.

Professor Leake's book may be commended from every point of view, and could be, with advantage, in the hands of every medical man A. G. NICHOLLS

Gynæcology for Nurses. H. S. Crossen, M.D., F.A.C.S., Professor Clinical Gynæcology, Washington University Medical School, and Gynæcologist in Chief to the Barnes Hospital and the Washington University Dispensary. 281 pages, 365 engravings, 1 colour plate. Price $2.75. St. Louis: C. V. Mosby Co., Toronto: McAinsh & Co., 1927.

This is a simple, concise treatise on gynæcology, covering the more important points in anatomy, physiology, diagnosis, and treatment, and ought to prove an invaluable aid to nurses in caring for gynæcological patients more intelligently. The subject matter is carefully arranged and is presented in a very simple, clear manner. The three hundred and sixty-five well chosen illustrations, are fairly distinct, and help greatly in clarifying the text.

The first four chapters deal with the anatomy and physiology of the pelvic organs and the various gynæcological diseases, their diagnoses and treatment. Then follows a detailed description of the nurses' duties in caring for an operative case, both prior to, during, and after the operation. The technique described is that used in the Barnes' Hospital, Washington.

As a text-book in gynæcology for nurses, this book will be found most helpful. ELEANOR PERCIVAL

Principles of Solution and Dosage. A Text-Book for Nurses. Ann Blumenthal, R.N. Educational Director Training School, Pacific Hospital, Los Angeles. 111 pages. Price $1.75. Toronto: Macmillan Co., 1927.

This manual for nurses deals mainly with the problems concerned in the preparation of stock solutions and their dilution. The preparation of different doses from tablets of standard size is also considered.

The author has developed her subject by a careful and detailed consideration of the arithmetical problems involved so that the reader may see clearly the reason for each procedure.

The student nurse who studies this book carefully and solves the problems included in the text, should have no difficulty with such questions when she meets them in practice.

A few inaccuracies occur such as the definitions of fluid extract, and tincture, and a misprint of "grain" for "gramme" on page 47.

W. G. MACKERSIE

Food Infections and Food Intoxications. Samuel Reed Damon, Associate Professor of Bacteriology, Johns Hopkins University. 266 pages. Price $4.00. Baltimore: The Williams and Wilkins Co., 1928.

This volume is not an original contribution but is, as the author states, "a compilation of known knowledge gleaned from many journals." It covers a field concerning which systematic knowledge is limited and scattered—thus its justification.

The contents are divided into three sections, namely: (1) infections from food; (2) intoxications from food; and (3) zoo-parasitic infections acquired through food. Appended to each chapter is a bibliography for those wishing to investigate the original articles. This makes it a useful book of reference.

Based upon recent knowledge the older theory of food poisoning due to ptomains has been discarded. Such cases, the author considers, are due to the presence of pathogenic bacteria or their products in the food.

Chapters of outstanding merit are those dealing with: (1) Tuberculosis from milk and meat, (2) Botulism, (3) Mushroom poisoning, and (4) Taeniasis.

Any criticism of the subject matter would bear upon the presentation of the symptomatology and treatment of the infections or intoxications under discussion.

The volume should be of value to our medical literature. E. H. MASON

Text-Book of Practical Therapeutics. Hobart Amory Hare, B.Sc., M.D., LL.D. Twentieth edition. 1094 pages, illustrated. Price $7.50 net. Lea & Febiger, Philadelphia, 1927.

The twentieth edition of a book should be evidence enough of its literary health, and so of its usefulness. This remark is specially applicable to Dr. Hare's book. It would be difficult to mention a text-book on therapeutics which has more to recommend it in convenience of arrangement, clearness of expression and soundness of authority. In spite of its many revisions it still retains approximately its original size, which says a good deal for the skill with which it has been adapted to the growth of our knowledge in therapeutics. It is elementary enough for students while it will always be a serviceable book of reference for the practitioner. H. E. MACDERMOT

International Hygiene. C. W. Hutt, M.A., M.D., D.P.H. 261 pages. Price 10/6 net. Messrs. Methuen & Co., 36 Essex St., London, W.C.2, 1927.

This is the title of a very timely book. Those interested in public health must recognize the necessity of keeping informed on international hygiene.

Increased methods of transportation and immigration favour the transmission of disease. It is therefore of the greatest importance that governments should prevent the importation of disease from foreign parts.

There are eleven chapters in this volume. The first three chapters are concerned with the ways in which communicable diseases may be kept out of a maritime country. In this connection the importance of aerial transportation in the spread of disease is stressed. The rapidity of air transport makes it easy to disseminate diseases of short incubation periods. To-day there is much greater danger of yellow fever being introduced into India via the air than formerly when it took many days to travel by land and water from Africa to India.

The need for sanitary supervision of air traffic is evident from the fact that the last outbreak of rabies in England was caused by bringing a dog from France in an aeroplane.

The necessity for supervising the production of foreign grown foods is pointed out in chapter four.

There is a chapter on the international aspect of drug habits, on the hygiene of emigration and immigration and on venereal diseases.

In chapter eight mention is made of measures taken to control the diseases most frequently met with among seamen — tuberculosis, malaria, typhoid and plague.

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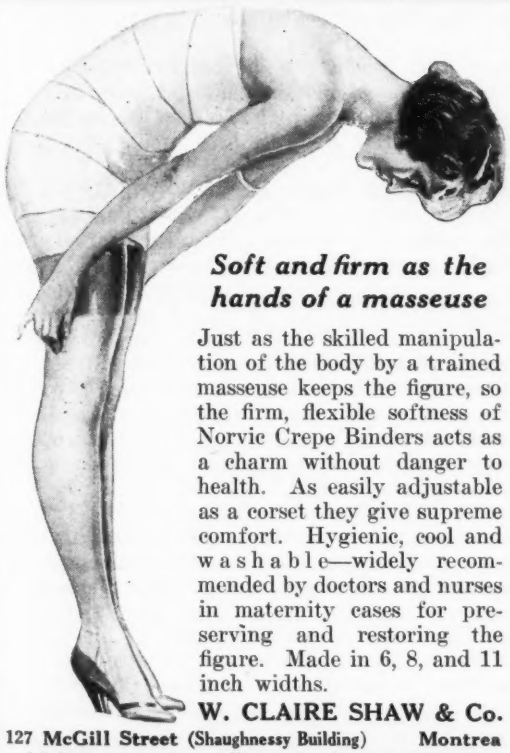

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XUM

The important subject of industrial hygiene is considered in chapter nine. The author states that no man's occupation should be a menace to his health or a risk to his life. In this chapter there are recommendations made with regard to the working hours of pregnant women, to the employment of women and children in unhealthy processes, to the disinfection of wool, hair, skin and bones, to the use of white lead in painting.

The last two chapters are devoted to voluntary aid in public health and to the work of the League of Nations Health organization.

This book was written to show how much the health of any one country is dependent upon the hygienic conditions in foreign countries. It contains much information that is valuable to health officers in government service, to port medical officers, to medical officers in the naval and mercantile service, and to all those interested in the world's health.

R. ST. J. MACDONALD

Factors in Vision.—Again and again the laity, and some doctors, fall into the habit—some would call it the slovenly habit— of supposing that in stating a figure indicative of visual acuity under certain conditions the measure of the sight of the person examined has been given. Examples of the evils that arise from such slipshod habits are not far to seek. A little while ago an attempt was made to qualify the terms of what was meant by "economic blindness," in regard to the provisions of the Blind Persons Act, by introducing stereotyped standards of visual acuity. A vigorous protest by Mr. Bishop Harman published in our columns led to (or at any rate was followed by) further directions which materially and advantageously varied the criticized proposals, by restoring to the certifying doctor his responsibility for the judgment of the state of the sight in relation to work in each individual case. Again, during the past year a somewhat lengthy correspondence was published in the *Times* on tests of vision for motor drivers, and in most of these letters there was the same harping on visual acuity as a possible standard of efficient sight. In the Journal of October 8, 1927, we touched on the many factors other than acuity that needed to be taken into account before the quality and quantity of a person's vision could be determined. Further, it is no uncommon occurrence in county courts, where claims made under the Workmen's Compensation Acts are adjudicated, to hear evidence given by medical witnesses that the patient's vision by reason of the accident has been reduced to 6/12, and it is almost the rule for the cross-examining counsel to describe this as "vision reduced to one-half the normal." Too commonly this erroneous statement is allowed to pass unchallenged, since a discussion upon the meaning of medical terms is rarely advantageous in a court of law. Dr. Fergus is without doubt right in his insistence on what may be almost conceded as a paramount asset in vision—the field of vision. For all general purposes of life a good field of vision is imperative. Without that, no matter how good the visual acuity may be, the subject of the defect is more or less a prisoner unless there be some guide at hand whose services can make up to him what he lacks. Extreme cases have been known in which visual acuity has remained nearly full, registering as much as 6/9, yet with an extremely meagre field of vision—a field restricted, perhaps, to no more than five or ten degrees from the fixation point. Such a patient is blind, so blind as to need leading about; he is unable to see a friendly hand held out to welcome him; blind despite his ability to read small print! The reverse, where there is no macular vision but a full general field of vision up to the normal periphery, gives quite a different picture. Such a person (showing, for example, a patch of degeneration or choroiditis in each macula) is a free man, able to move about at his own pleasure and in safety; he can engage successfully in many of the varied occupations of modern life, especially in country districts, but with less success in great towns, where ability to read is commonly necessary. The value of a good field of vision is very rightly stressed by Dr. Fergus. But we venture to suggest that in doing so he has somewhat belittled the value of an intact and efficient macula, one that is capable of giving keen vision for detail.—Editorial, *Brit. M. J.*, Jan. 14, 1928.

Autres Temps, Autres Moeurs.—A quotation from the *London Medical Gazette*, January, 1828, "affords a striking illustration of the tumultuous state of our professions" at that date. The example takes the form of a duel between one Dr. Forbes, of Argyll Street, and a young surgeon named Thompson. Dr. Forbes chose for his second Dr. Hume, of Curzon Street, a man well suited for the task, as he has lived much in the army, among high-bred and susceptible gentlemen, and knows what is required by the laws of honour too well to allow of any foolish and unnecessary waste of blood. Mr. Thompson was attended by Lieutenant B. The meeting took place in a solitary part of Clapham Common. After the first fire, Mr. Thompson still refusing to apologize, the duel was allowed to go on till each party had fired three times, when, Dr. Forbes's third shot having hit his antagonist's hat, the seconds interfered, and put an end to the combat.—*The Times*, Jan., 1828,

A.G.N.

BOWEL SLUGGISHNESS

In an investigation of the causes and treatment of various types of chronic constipation, Lohrisch and others have emphasized the value of restoring the feces to a soft, yielding state. In this way they claim that normal peristalsis can be obtained in a purely mechanical fashion and in a manner which does not run counter to natural processes. Far superior, therefore, to the usual type of cathartic or laxative is the use of Petrolagar—an emulsion of mineral oil with agar-agar. In this product the oil globules have been split up by emulsification so that they are capable of permeating and softening the intestinal content. With Petrolagar the action is purely mechanical and, when prescribed together with a regimen of appropriate diet and exercise, natural results are obtained and the period of bowel re-education materially shortened. (Deshell Lab., Chicago.)

INTESTINAL TONICS IN ANÆMIA

In conditions of anæmia, one will quite frequently meet with digestive complications, arising from pancreatic deficiency or a tendency to constipation. Since the reduced power of resistance of the anæmic economy makes it far more difficult for the patient to throw off the toxins developing in such conditions, it will be frequently found advisable to administer an intestinal antiseptic and tonic with the usual general reconstituents. Guiatonic combines to a nicety the functions of intestinal disinfectant and tonic—through its creosote and guaiacol content—with the properties of a general organic stimulant such as is required in anæmia—through its content of strychnine, iron and hypophosphites. The practitioner who uses Guiatonic in the general treatment of anæmia will be agreeably surprised at its pronounced value as a synergist to whatever method of treatment he is using, and particularly at its effect on the general tone of the intestinal tract. Wm. R. Warner Co., 727 King St., Toronto.

INFECTIONS OF THE GENITO-URINARY TRACT

In the treatment of such conditions as pyelitis, cystitis, pyelocystitis, urethritis, etc., the new urinary antiseptic, Pyridium, has proven to be very effective. It is a semi-colloidal condensation product of the beta and gamma isomers of phenyl-azo-alpha-alpha-diamino-pyridine hydrochlorides.

Pyridium exhibits four outstanding characteristics, first, its marked power of stimulation to the proliferation of epithelial cells, second, a powerful bactericidal action directed chiefly against organisms of the cocci type, third, its ability to penetrate into the tissues and fourth, its rapid elimination through the genito-urinary tract. The theory of the bactericidal action of Pyridium is based upon a conception of themotherapeutic activity according to which the parasiticidal power of the substance is increased by its particular colloidal state, while simultaneously its toxicity is lowered. Systematic doses of Pyridium by mouth are usually sufficient for the treatment of infections of the genito-urinary tract. The remedy is rapidly absorbed from the gastro-intestinal tract and penetrates with great rapidity into the tissues and organs of the genito-urinary system, where it exerts its specific effect. Merck & Co. Inc., Montreal, who are the distributors in Canada, will supply literature to physicians upon request.

TWO thousand feet in the Allegheny Mountains of West Virginia, nestling in a beautiful valley, are to be found the Greenbrier Hotel and Cottages with their 7,000 acres of golf courses, riding and walking trails, tennis courts and grounds. In connection with the hotel, there is a building devoted to the Medical and Bath Departments, which are superlatively equipped for the treatment of disorders due to faulty elimination, chronic joint disturbances, certain circulatory disorders, nervous states, etc., by combining the use of waters from the famous White Sulphur Springs, in use since 1778, with hydrotherapeutic, electrotherapeutic and medical measures. A more delightful spot for the enjoyment of a cure or for one recuperating from an illness or an operation is not to be surpassed either in this country or abroad.

THE GREENBRIER
WHITE SULPHUR SPRINGS - W VIRGINIA

THORNTON LEWIS, *President* FRED STERRY, *Managing Director* GEORGE O'BRIEN, *Ass't. Manager*

Vitamins in Cod-Liver Oil—The recently published work of Clare and Soames now shows that there is no parallelism or interrelationship between the content of these factors (antiophthalmic and antirachitic) in substances, such as cod-liver oil, which contain both. These investigators found that some oils, which were rich in vitamin A were poor in vitamin D and that others rich in vitamin D were poor in vitamin A; in other words, that no correlation existed between the content of the two vitamins in the oils of their series. The Council on Pharmacy and Chemistry of the American Medical Association in a chapter on Medicinal Foods in New and Nonofficial Remedies, 1928 (now on the press), have briefly presented our present knowledge on this subject. Though various more or less satisfactory methods now exist, the Council states that it does not feel justified in requiring any specific test or standard of antirachitic potency. In this situation the Council announces the policy of encouraging manufacturers to adopt and publish such methods of testing as will enable them to guarantee a vitamin D potency for their products. For accepted or submitted products the Council permits no claim of vitamin potency unless it is backed up by adequate tests for the kind of potency claimed. All accepted products must have, according to the Council's statement, a vitamin A potency of at least 400 units per gram when tested by the pharmacopeial method. For vitamin D potency a specific standard is not required, although, as has been pointed out, the manufacturer must specify adequate tests when claims of antiratchitic potency are made or implied.—Editorial, *J. Am. M. Ass.*, Mar. 10, 1928.

Prevention and Treatment of Asphyxia in New-Born.—Failure of the new-born to breathe or a condition of insufficient natural respiration should not be treated by the old-fashioned methods of cutaneous "stimulation," says Yandell Henderson, New Haven, Conn. Such methods are essentially unphysiologic and harmful. They are probably also ineffective in all cases except those in which inflation of the lungs alone would have been sufficient to initiate breathing without additional "stimulation." Resuscitation of the new-born should be based on the modern conception of the regulation of respiration by the action of the blood gases on the respiratory centre. Oxygen is not a stimulant but a foodstuff and beyond a first slight stimulating effect, depresses the nerve centres. In the absence of oxygen the tissues of the body cannot produce carbon dioxide. It is carbon dioxide carried by the blood from the tissues to the brain that is the physiologic stimulant to respiration. When the centre is depressed, it requires more than the normal amount of this stimulant to induce activity. In order to start respiration, a gentle inflation with oxygen and carbon dioxide for two or three seconds three or four times a minute should be applied. As soon as natural breathing develops, the inflation should be stopped, but inhalation of this gas mixture should be continued until full breathing is established. This is not only the physiologic and therefore best method; in its essential features it is really the only possible method that nature and science offer. Hospitals and outside obstetricians should be provided with suitable inhalator apparatus and with cylinders of oxygen and carbon dioxide, but they will do well to remember, when the baby does not breathe, that the fire department in every progressive city now has such equipment.—*J. Am. M. Ass.*, Feb. 25, 1928.

Dr. Inge, whose subject was "Scientific Ethics," said it was to be expected that the scientific view of the universe would come in conflict with some quasi-religious views belonging to a pre-scientific age. We might dismiss the idea of an imminent end of the present world-order, and we must also accommodate our eschatology to a view of the universe which left no room for a geographical heaven and hell. Science gave no clear answer as to whether we should believe in a personal God or not, but it had a very clear conviction that if there was a personal God, He was not at all like what many religious believers had supposed. Sir John Seeley said that the man of science worshipped a nobler God than the average churchgoer; and he (Dr. Inge) thought he was right. He hoped that the scientific conscience would win a great victory by driving into limbo that mass of half-beliefs which we called superstitions. It was a big thing to ask, for superstition was as old as man himself; but what a shameful and discreditable thing it was to see an otherwise intelligent person refusing to sit down to dinner as one of 13, objecting to be married in May, or "touching wood" if he had said anything "unlucky." Referring to eugenics, he said that however discouraging the immediate prospect might be in a land of incorrigible sentimentalists like England, it was the manifest duty of those who understood the supreme importance of preventing the degradation of the national type to go on attempting to educate their fellow-countrymen. There were signs that the efforts of these enlightened patriots had already borne some fruit.—Extracted from *The Weekly Times*, Nov. 24, 1927.

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